JANUARY/FEBRUARY 2001

IOWA CONSERVATIONIST

DEPARTMENT OF NATURAL RESOURCES

IOWA CONSERVATIONIST

FRONT COVER: SNOW GOOSE BY LOWELL WASHBURN.
INSIDE FRONT COVER: LONE COYOTE BY ROGER A. HILL.
BACK COVER: FROSTY OAK LEAVES BY ROGER A. HILL

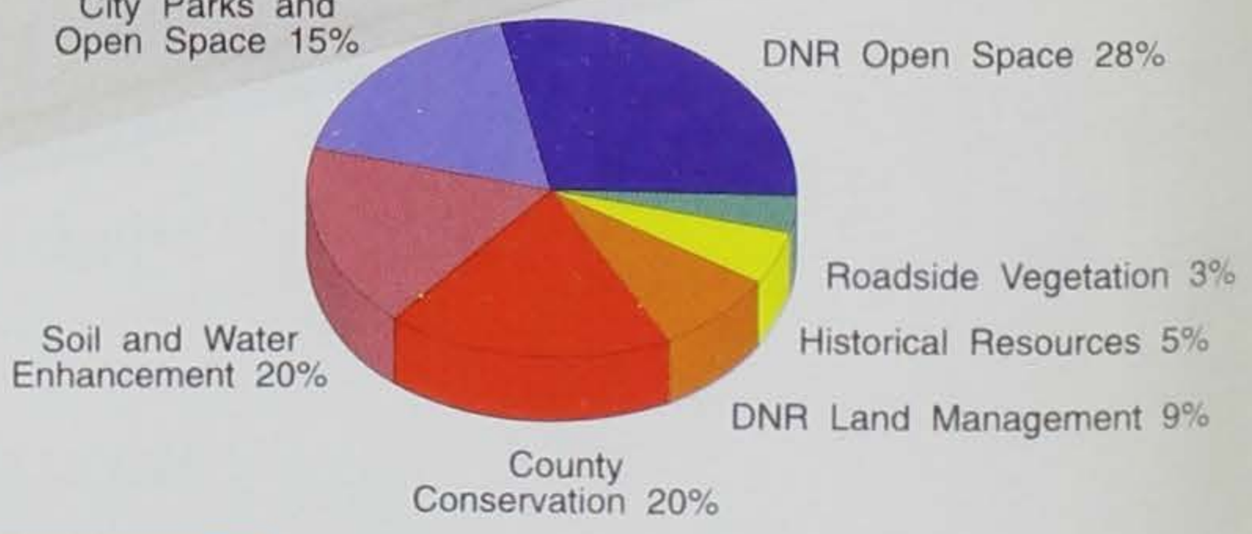
Departments

Features

▶ The money from natural resources license plates goes to the Resource Enhancement and Protection Fund—REAP. Created in 1989, REAP has received the highest national award for conservation programs. So far, it has generated $70 million and rising. To buy a set of the $35 plates, take your current plates and registration to your county treasurer and request the natural resource plates.

IT'S FOR THE BIRDS

REAP In Action



In this season of resolutions, it seems a good time to initiate a few changes in the *Iowa Conservationist.*

We always welcome comments, questions and ideas, and beginning with the next issue, we will open up two forums for our readers to express themselves. Beginning with the March/April 2001 issue, we will publish a regular "Letters" column. The letters will reflect readers' opinions of the *Conservationist* and its contents, and questions regarding natural resource issues. Please send your letters to "Letters," *Iowa Conservationist*, Iowa Department of Natural Resources, 302 9th Street, Des Moines, Iowa 50319-0034 or e-mail us at alan.foster@dnr.state.ia.us or julie.sparks@dnr.state.ia.us. Please limit letters to 250 words and include your address and daytime phone number. Written letters must be signed and e-mails must include the author's full name to be considered. We reserve the right to edit letters for length and clarity.

In addition, we encourage our readers to submit photos to our "Parting Shot" column on page 63 (formerly known as "Parting Glance"). We are looking for humorous and/or historical (prior to 1960) photos depicting Iowa wildlife or outdoor recreation. Photos should be sent to "Parting Shot," *Iowa Conservationist* at the address above, and please include your name, address and daytime phone number. With regard to historical shots, we would appreciate a caption identifying people, places and approximate dates. All photos will be returned.

Also in our next issue, we will introduce "Kids Corner." Geared toward but not limited to children, it will replace "Classroom Corner." Readers will also note we have changed the name of "Practical Conservationist" to "Conservation 101."

We listen to our readers and try to incorporate as many good ideas as possible. Recently, our readers have told us about difficulty in reading some of our department pages. Hence, we have redesigned the pages, removing the background colors and enlarging type on not only those pages but throughout the magazine.

We hope you enjoy the changes. As always, we welcome your thoughts. Happy New Year.

The *Conservationist* staff

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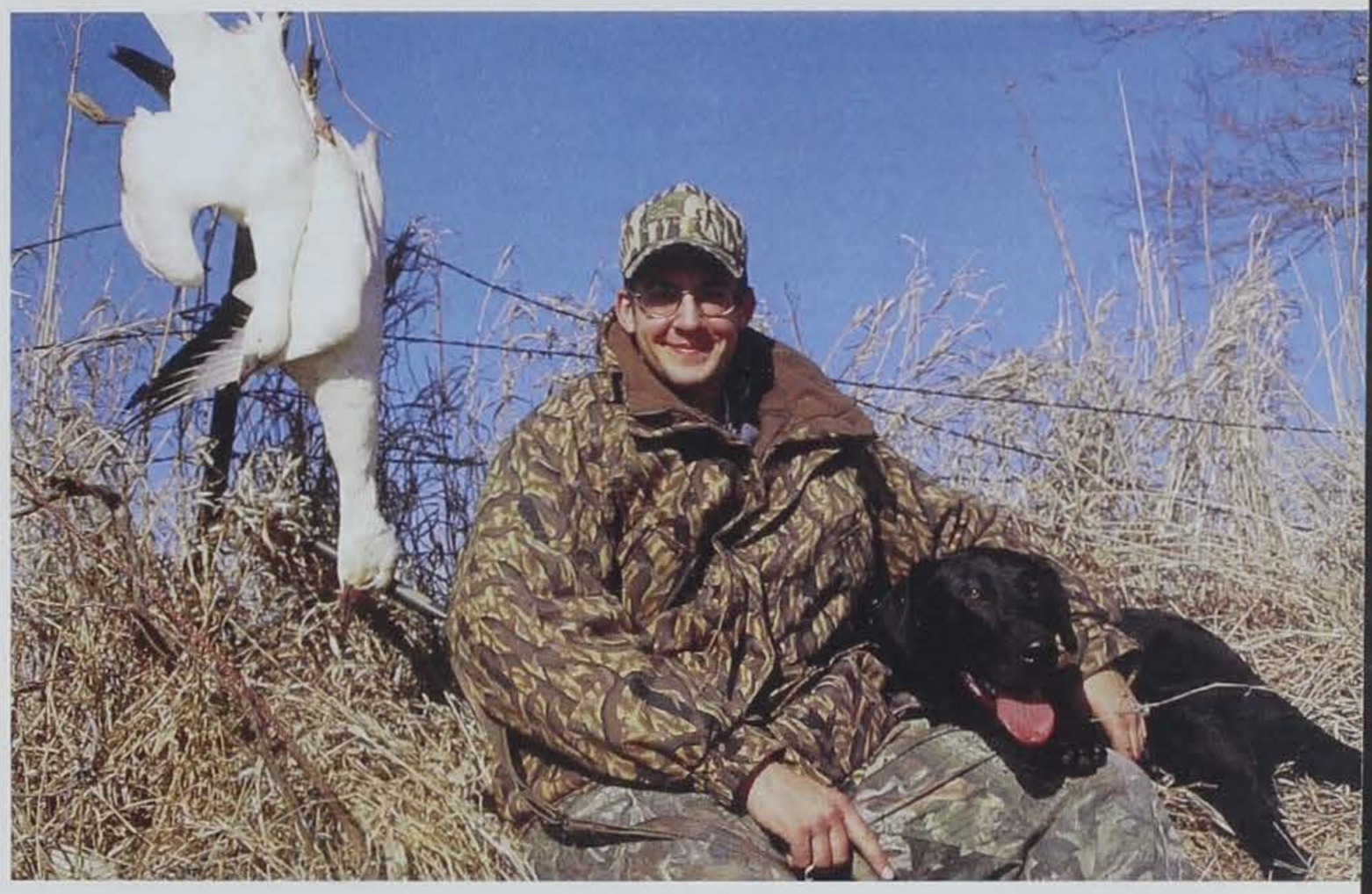
Texas Rags

Provide Classic Iowa Goose Hunt

Article and photos by
Lowell Washburn

An adult lesser snow goose in "Texas rag" decoys.

Hunter and dog enjoy their bounty.



There are a lot of ways to hunt sser snow geese. They can be nased, pass shot, sneaked or toiled er water to a rig of floating coys. All will put geese in the g. But for those waterfowlers ho succumb to tradition, there is mply no substitute for the time-onored method of luring migrating ows to a Texas rag set.

Texas rags originated along the outhern Gulf coast region where ost of America's mid-continent ow goose population spends the inter. As the name implies, Texas gs are nothing more than squares white cloth. When spread in large mbers on harvested grain fields, e cloth squares become instant coys. From a distance, the rags do resemble feeding snow geese. However, when viewed up close they look — well, they look ridiculous. Phony or not, Texas rags do have an uncanny ability to attract and deceive lesser snow geese. In the opinion of some veteran hunters, it is a tactic that is second to none.

Although common sense suggests a Texas rag set should be as effective at the top of the flyway as at the bottom, comparatively few hunters use the spreads north of the wintering grounds. By the time you get as far north as Iowa, they become a true oddity. Travel north of Interstate 80 and no one uses them. Almost no one, that is. Northern Iowa's Marcus Majerczyk is one very successful exception to the rule.

Majerczyk lives on the east edge of Clear Lake and is best described as a super-dedicated, hard-core waterfowling enthusiast. He's also just about as serious about spring snow goose hunting as a person can get. When the birds are migrating, he'll most likely be found decked out in a white stocking hat and coveralls, lying in the middle of more than 500 Texas rag decoys.

Like most contemporary snow goose enthusiasts, Majerczyk has replaced traditional cloth rags with Tyvek wind socks. Even the slightest breeze fills the lightweight socks with air and instantly the whole rig waddles in place. The end result is the highly effective illusion of 500 white geese marching across a

Above: Blue-phase snow goose pauses to glean waste grain from an Iowa cornfield.
Below: The key to Texas rag sets is a lot of decoys in a visible location.

picked cornfield. To passing snows, it's an invitation too good to resist.

Majerczyk began assembling his spread in 1998. During the past three seasons he has learned two undeniable facts — Texas rag sets are a lot of work and they are highly effective, even in northern Iowa.

Typically, it takes about two hours to lay out the spread, and slightly longer to pick it up. But for a dedicated goose hunter, the rewards are well worth the effort. In three seasons of hunting, Majerczyk has yet to be skunked.

"I think a lot of hunters have the idea that rag sets won't work in a place like northern Iowa. People think in order to be successful, you need to stick to the huge goose concentrations that frequent the traditional areas farther south," said Majerczyk.

"I think that once you get away om the Missouri River, snow geese igrating across the interior of the ate are a very under-used resource. Iost hunters don't realize what ey're missing, and I'm always ying to get more people involved in e spring hunt," he added. "I feel at getting more people into the field enerates additional enthusiasm for e sport of waterfowling while, at e same time, helping reduce the umber of light geese.

"What I do is not really compli- ated. Typically, I like to set up in a ornfield near good marsh habitat with hallow water and lots of mud flats. ince we're hunting migrants, it really oesn't matter whether or not any eese have been using the area. I try o make myself as visible as possible by etting up on open flats or hilltops. If the ocation is high enough, I can pull geese rom three or four miles on either side f the spread. I use an electronic caller vhich is very effective for bringing the irds all the way in."

One of the things that makes exas rag sets so effective in nontra- litional areas, such as Iowa's interior, s the lack of competition from live eese. On the wintering grounds or long Missouri River hotspots, snow eese can see other snow geese verywhere they look. Hunters soon earn it is nearly impossible for any umber of decoys to compete with the 50,000 live birds feeding in the next field. But as fewer snows migrate across more centrally located portions of the state, your decoys may be the only other "white geese" they see.

An electronic caller is a critical component of the spring snow goose hunt.

When spread in large numbers on harvested grain fields, the cloth squares become instant decoys. From a distance, the rags do indeed resemble feeding snow geese. However, when viewed up close they look . . . well, they look ridiculous.

One of the most exciting aspects of spring goose hunting, says Majerczyk, is no matter how high the snows are flying, it is still possible to pull them out of the migration pattern. This is a phenomenon rarely, if ever, witnessed during the fall migration. (While shooting photos for this story, I watched Majerczyk pull down two flocks of snows that were migrating at around 2,000 feet above the landscape!)

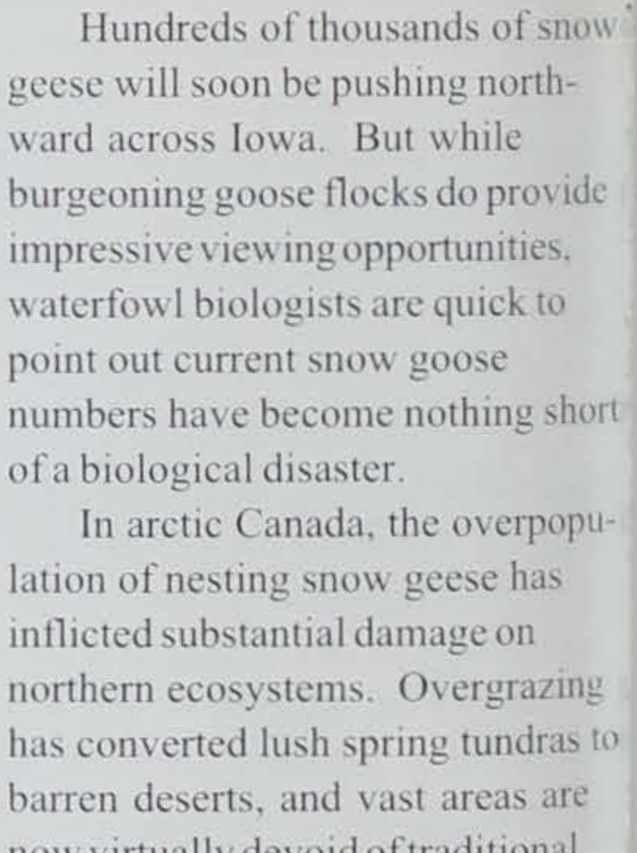
"When you do pull a flock out of the 'jet stream' it might take 20 minutes or more for the geese to come into shooting range. These birds have been hunted hard and they're extremely educated. When a flock does finally commit to landing in the decoys, it's a real thrill.

"The other side of the coin is sometimes a flock — including those containing 500 or 600 geese — will parachute right into the decoys on the first or second pass. You just never know what's going to happen.

"Even if we only shot one goose per day, the noise and excitement of bringing these birds to decoys would be well worth the effort."

Bag of spring snows from Iowa's interior.

Conservation Agencies Attempt to Reduce Snow Goose Numbers



Hundreds of thousands of snow geese will soon be pushing northward across Iowa. But while burgeoning goose flocks do provide impressive viewing opportunities, waterfowl biologists are quick to point out current snow goose numbers have become nothing short of a biological disaster.

In arctic Canada, the overpopulation of nesting snow geese has inflicted substantial damage on northern ecosystems. Overgrazing has converted lush spring tundras to barren deserts, and vast areas are now virtually devoid of traditional bird life. Scientists say a full third of the tundra has been destroyed, and another third is severely impacted. Growing snow goose populations not only threaten their own survival, but also endanger the existence of dozens of other arctic nesting bird species.

In an effort to reverse this trend, wildlife managers have

Spring migrant snow geese in northern Iowa

regular season harvest [633,264] and the harvest taken under the conservation order or while using special hunting methods [439,252] exceeded 1 million light geese for the first time since records were kept," said Zenner. "This figure represents a significant increase from the 730,000 birds harvested in the U.S. during the 1997-98 season, which was the last season before special harvest measures were implemented."

Preliminary data suggests U.S. hunters bagged more than 1.32 million geese during the 1999-2000 combined seasons. In Iowa, the light goose harvest during the regular 1998-99 season was 15,600. The harvest during the March 11 to April 16 conservation order was 12,043, for a combined Iowa bag of 27,643.

"I think it is important to note that this figure represents four times the average 1988-97 light goose harvest in Iowa. During 1999-2000, the regular light goose harvest in Iowa was only 11,300, but the bag during the conservation order period was 20,681, for a combined total of 31,981," said Zenner.

"To me, the figures are extremely encouraging and suggest, given the appropriate tools and time, hunters may just be able to bring this population under control."

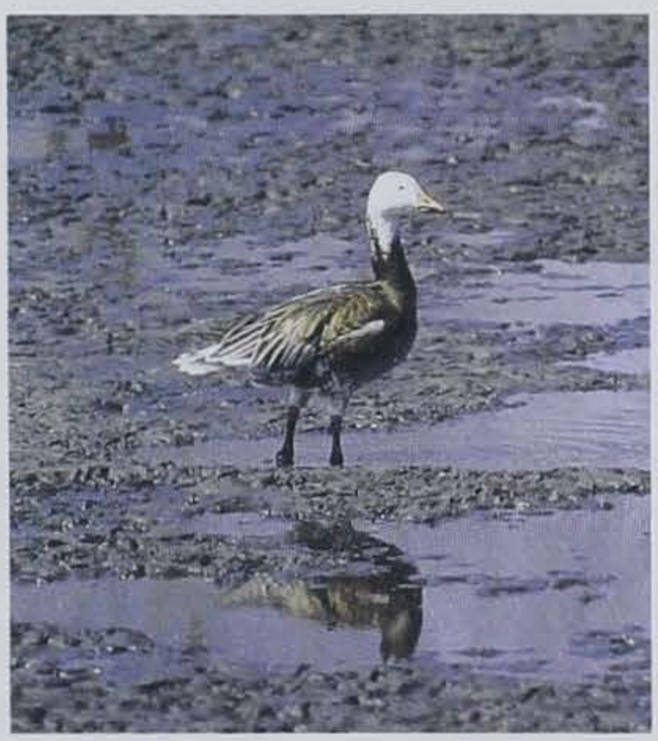
-- LW

ffered expanded (spring) hunting easons and liberalized daily bags. his spring, conservation agencies are gain encouraging hunters to increase e harvest of snow geese. This ear's conservation order (hunting eason) runs Feb. 15 through April 15. he daily bag limit is 20 snow geese, nd there is no possession limit. For ie third consecutive year, hunters are lowed to use electronic callers and nplugged shotguns.

According to DNR waterfowl iologist Guy Zenner, the annual winter opulation index of mid-continent light eese has tripled during the last 30 ears. There were around 800,000 intering snows in 1969, compared to bout 2.6 million last winter. The ombined number of geese frequenting ll known breeding colonies will likely xceed 5 million birds this spring. The agile Canadian arctic, with its short rowing season, cannot support goose opulations of that size, Zenner said.

In order to increase the harvest of light geese, 10 mid-continent states implemented a conservation order during 1998-99. The intended goal of this emergency act was to reduce mid-continent light goose populations by 50 percent by 2005.

"During 1998-99, the combined



As overabundant flocks of snow geese grub for roots, thousands of acres of arctic nesting habitat have been turned to desert.

Fourth in a Series

MANIFEST DESTINY

A Brief History Of Wildlife Conservation in Iowa

by Terry W. Little

"... the fulfillment of our manifest destiny (is) to overspread the Continent allotted by Providence..."
- John L. O'Sullivan (1845) United States Magazine and Democratic Review

When magazine editor John L. O'Sullivan coined the phrase "manifest destiny," he merely put into words what had become one of the dominant economic and political philosophies of the United States in the 19th century. Land along the eastern seaboard had filled rapidly with immigrants in the late 1700s.

Sawmill near Monticello, 1895. Most of the initial forest clearing in Iowa was done to allow for the conversion of the forests to available farmland.

Iowa farm family, 1886. The earliest white settlements in Iowa were established in the 1830s in Dubuque and Keokuk. Within the 30 years that followed, much of the state was settled.

After the Revolutionary War people began moving westward across the Allegheny Mountains into lands newly acquired from Britain and Spain. Inevitable conflicts arose with the original Native American inhabitants of the regions and Congress was under pressure to resolve them. The resulting policy of conquer, pacify and relocate Indian peoples was not one of the finest chapters in American history, but it did open up most of the land east of the Mississippi River to white settlement by the early 1800s.

The Louisiana Purchase in 1803, which included land that would become the state of Iowa, granted the new nation its first legal claim to possessions west of the Mississippi. Originally this vast territory was viewed by the federal government as a place to relocate eastern Native American tribes, ending the "Indian problem" by segregating two cultures that had not been able to coexist peacefully. Keeping trappers and Indian traders out of the newly acquired holdings proved difficult, but permanent settlement was prohibited.

The opening of the Erie Canal in 1825 soon frustrated that policy. The canal created a link between the Hudson River and the Great Lakes and allowed a tide of European immigrants to flow into the Upper Midwest. Ohio, Indiana, Illinois, Michigan, and portions of Wisconsin and Minnesota were quickly settled. Letters to families left behind in Europe spoke of vast, cheap farmland available in the new nation. The lure of freedom and economic opportunities not available in Europe proved irresistible and the pressure for more land to settle intensified.

In the early 1830s it became evident that the policy of containing settlers east of the Mississippi River could not last. In Iowa, the only permanent white settlements were in Dubuque, where lead was mined from the Mines of Spain and the extreme southeast corner where the Des Moines and Mississippi rivers met. A small settlement existed at Keokuk and a few hardy pioneers farmed in what would become Lee County on lands purchased from the Sauk and Fox tribes in 1824.

The end of Black Hawk's War in 1832 between the United States and Sauk and Fox tribes in Illinois and Wisconsin brought about rapid change. As part of the peace settlement, Congress approved purchase of a strip of land 50 miles wide bordering the west bank of the Mississippi River for nearly its entire length in Iowa. The Black Hawk Purchase was intended to serve as a buffer between Indians and whites. The remainder of what would eventually be Iowa was divided between various Native American cultures - the Sauk and Fox, Winnebago, Ioway, Oto, Omaha, Missouri and roaming bands of Sisseton, Yankton and Wahpeton Sioux. White settlement was theoretically prohibited, but squatters with no legal right to do so had crossed the Mississippi River into Iowa as early as the mid-1830s.

The federal government, realizing that the tide of westward expansion could not be turned, entered into separate agreements with the various tribes in 1836, 1842, 1846 and 1851. Eventually the remainder of Iowa was purchased for just a few million dollars and the native residents were moved west more or less peacefully.

The government had an organized plan for settling new territories: move out the Indians, survey the land and sell individual tracts to newcomers. By 1840, this slow process resulted in only a few counties in extreme eastern Iowa being settled; the new territory's population was estimated at 43,000 hardy souls.

The pioneering process accelerated rapidly in the 1850s and 1860s. Pressure for cheap land increased and massive land grants were made to railroad builders to stimulate completion of a transcontinental railroad system. Settlement in Iowa progressed roughly southeast to

northwest. Most of the south half of the state had been inhabited by the end of the 1840s; north-central and northwest Iowa were settled in the 1850s; Lyon County in extreme northwest Iowa was the last to be settled, receiving its first homestead family in 1866.

Iowa's earliest white settlers were primarily northern Europeans – Germans, English and Scandinavians – who brought with them a strong work ethic and a desire to carry the tenets of manifest destiny to its ultimate conclusion. Not only would the land be occupied, but the wilderness would be conquered and converted to a useful purpose. Accomplishing this formidable task required hard work and lots if it. Settlers solved their labor problem by raising large families, and by 1860, Iowa's population had skyrocketed to nearly 650,000.

Most Iowa farmers subsisted on corn, wheat, oats, hay and a variety of livestock, including hogs, chickens, and cattle for beef and milk.

The Industrial Revolution Comes to Agriculture

At the same time Iowa was being settled, a revolution was overhauling agriculture. The discovery in England in the mid-1700s of ways to harness steam energy to power industrial machinery paved the way for the invention of innumerable mechanical devices that could accomplish tasks more quickly and efficiently, which for thousands of years had required hand or animal labor. James Watt perfected the steam engine in 1790, and it was quickly adapted to a variety of practical uses. Robert Fulton developed the first steam locomotive in the United States in 1802 and revolutionized transportation. The first steamboat plied the Mississippi River in 1811. A steam-powered dragline was used to finish the Erie Canal in 1825.

In 1832, Cyrus McCormick perfected a mechanical reaper to harvest wheat, rye, oats and barley, small grains that were the staple product of most farms. Prior to the reaper, wheat was cut and swathed with a hand-held scythe-and-cradle. Grain was picked up loose and taken to a farmstead where kernels and stalks were separated. An individual could harvest only about 20 acres of wheat a year by hand, so the size of farms and the amount of wheat produced were limited. McCormick's horse-drawn reaper, improved by William Deering in the 1870s, who developed the capability to mechanically bundle and tie the grain into shocks, permitted farms to increase in size and profitability.

One other invention would have an immediate and profound effect on farming in pioneer Iowa. Farmers new to the prairie were awed by the near impenetrability of the sod that protected the astonishingly fertile soils beneath. Primitive wood and iron plows of the time broke too frequently and were slow and ineffective at converting the prairie into tillable fields.

In 1836, blacksmith John Deere of Grand Detour, Ill., developed the first steel moldboard plow, and the vast prairie, with its incredible diversity and abundance of plant and animal life, died on his forge. By 1851, Deere was producing 10,000 steel plows a year from a new factory in Moline. The fate of the tall grasses that had covered Iowa for 10,000 years was sealed.

From Prairie to "Back Forty"

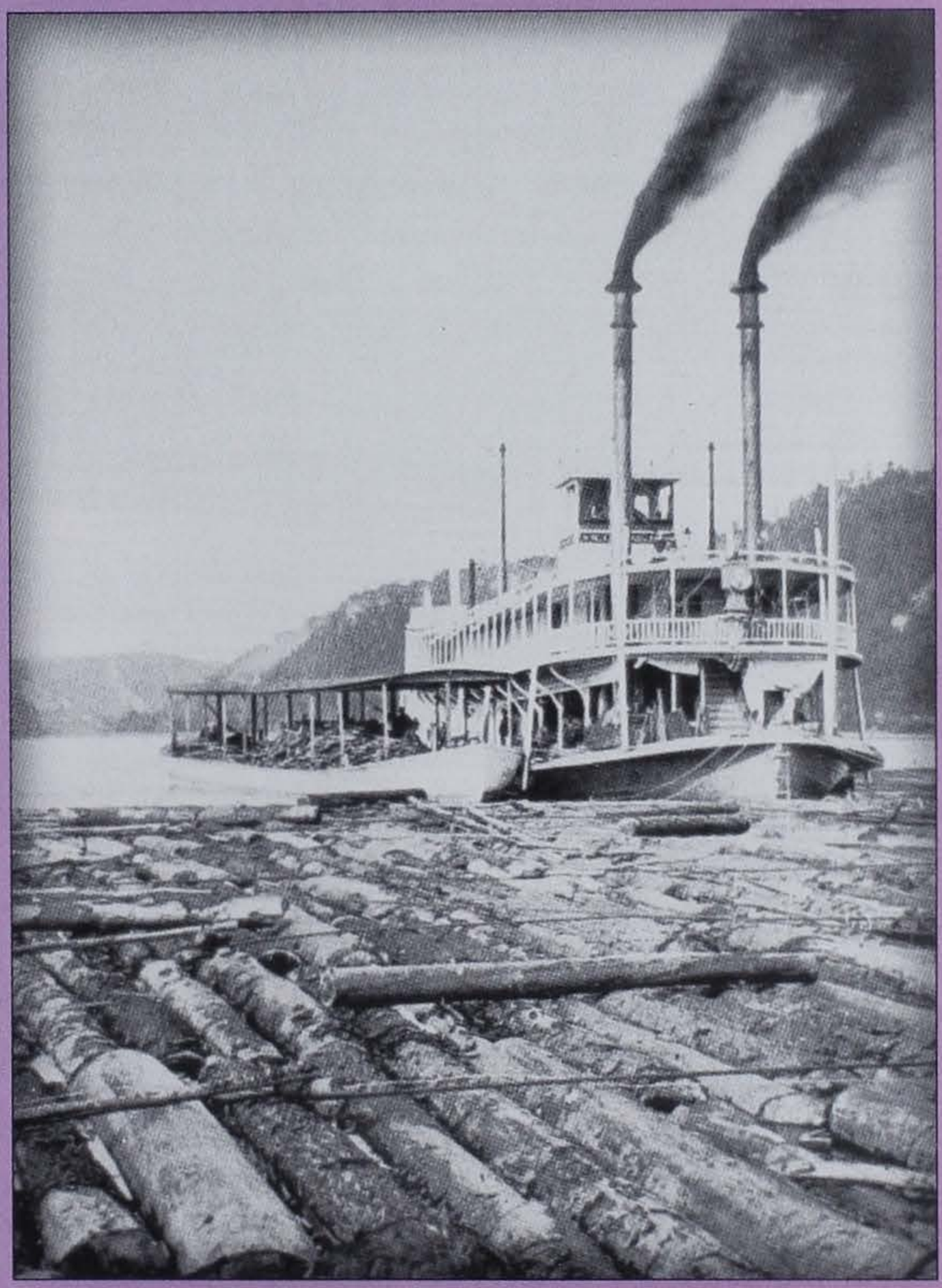
The advent of improved farm implements, coupled with a rapidly expanding population devoted mostly to agriculture, had a devastating and permanent impact on Iowa's native plant communities.

Woodlands were the first to go. ome early settlers preferred farming voodlands rather than open prairie, earing land too poor to grow trees vould not grow crops either. While xperience would quickly prove that vrong, forests felt the bite of the ioneer's ax early in our history.

Most of the initial forest clearing in owa was done to allow conversion of he land to agriculture. Iowa's native ardwoods did not prove valuable as uilding materials. Most of the lumber hat eventually built the farm homes, arns and livestock dwellings dotting the ountryside came from the great ineries of Minnesota and Wisconsin. Massive white and red pines were ogged and floated down the Mississippi o mills along the Iowa border and the umber was transported inland. Begining in the 1850s, however, railroad xpansion and the discovery of coal in outhern Iowa fueled a demand for oak ies and mine timbers that would last nto the early 20th century. By 1875, ust one-third of the original 6.7 million cres of primitive forest remained, most n rough land or in floodplains either too teep or too wet to plow.

The effect on our extensive prairies nd prairie-wetland complexes was even more devastating. When pulled by p to five teams of horses or yokes of xen, a steel "breaking plow" could hear through and break up two acres a lay of the foot-thick sod with its ntricately intertwined root systems. The newly exposed soil was so fertile hat a crop, first wheat and in later ears corn, was planted directly on the verturned furrows. The next year a econd plowing would complete the onversion of prairie to a field tillable by onventional methods. Starting in the 850s, Iowa lost nearly 2 percent of its 5 million acres of native prairie a year, million acres a decade, until less than 30,000 acres (0.1 percent) remained after 80 years.

The vast prairie-pothole wetlands of north-central and northwest Iowa took longer to fall to the plow. Through the first 20 years of settlement, there was plenty of good land available without trying to farm around wet acres. In 1850, Congress passed the Swamp Land Act. It directed each county to survey all wetlands and sell them at auction for five cents an acre, the first of what would become a century-long succession of government-subsidized efforts to drain wetlands. County drainage



Iowa's timber did not prove to be valuable as building materials, so most of the lumber used was floated down the Mississippi River from Minnesota and Wisconsin.

Late nineteenth-century thrashers.

commissions and drainage districts were soon organized. Eventually, pothole soils were found to be some of the most productive when dry, further accelerating the demand for drainage.

The first drainage attempts were with hand-dug, open ditches that drained shallow lakes and large marshes into permanent streams. Steam dredges did not replace hand labor until nearly 1900. Underground ceramic tiles were developed to drain smaller potholes into ditches as early as 1858. By 1917 modern clay tiles were used to drain seasonally wet fields into extensive, interconnected drainage systems that had eliminated all but the largest wetlands. By 1906 just 25 percent of the original 4 million acres of wetlands remained.

By 1900, most of Iowa's 1.8 million residents lived on small, nearly self-sufficient farms of 100 acres or less. They subsisted on corn, wheat, oats, hay and a variety of livestock: hogs, chickens and cows for milk and beef. In less than three-quarters of a century, approximately a human life span, Iowa had been converted from a seemingly limitless primeval prairie-forest-wetland mosaic into a domesticated landscape of small farms, grain fields and pastures. There were still untrained sloughs and wet pastures on many farms, and tracts of prairie could still be found to remind farmers of vintage Iowa, but these native areas were scattered and becoming ever smaller. In the early 20th century, they were still looked on as waste areas needing conversion to a more productive use. Farmers needed only time and better technology to do so.

Destruction of a Heritage

For most of the settlers, wildlife was not something to be admired or studied; rather, it was fresh meat to supplement the diet, hides that could be used or sold, or a competitor to or predator on the settlers' domestic animals and

In less than three-quarters of a century, approximately a human life span, Iowa had been converted from a seemingly limitless primeval prairie-forest-wetland mosaic into a domesticated landscape of small farms, grain fields and pastures.

crops. Thus, most settlers shot, trapped, or in some way killed or drove off the wildlife that they encountered. - James Dinsmore (1994). *A Country So Full of Game.*

With the rapid increase in human settlement and the steady and relentless conversion of the landscape to farmland, Iowa's native wildlife faced a crisis. Some species – those that competed with humans for space, were particularly useful for food or fiber or required very specific habitats that were eliminated or drastically reduced – did not survive. Others of less importance to humans held on in low numbers wherever suitable habitat remained, but their future remained suspect. A few species that could adapt to the remarkable change in habitats or were favored by the conversion to a diversified agricultural environment increased for a time, at least until agriculture became too pervasive.

Large game animals and the predators that lived on them were the first to go. Bison, elk and white-tailed deer were important sources of food for pioneer families because of their size and palatability (elk were probably preferred). Elk and bison were vulnerable to shooting on the open prairies. White-tailed deer were harder to hunt because they remained closer to forests and brush lands.

Dinsmore states the average time between the first settler arriving in a county and the last sighting of a bison in that county was just six years. Elk and bison mostly disappeared from southeast Iowa in the 1840s, central and north-central Iowa in the 1850s and northwest Iowa in the 1860s, paralleling the pattern of permanent settlement.

The disastrous winter of 1856-57 killed large numbers of young and weak elk and deer and concentrated the survivors in sheltered river valleys where they were found and slaughtered by settlers. That winter proved to be the demise of elk everywhere excluding a few counties in far northwestern Iowa. A second harsh winter in 1880-81 led to the slaughter of the last deer in northwest Iowa.

The last free-ranging bison in Iowa were a pair sighted near the Little Sioux River in Dickinson County in 1870. A herd of elk was able to hang on in unsettled areas of Osceola County into 1871 and appear to be the last surviving elk in the state. Whitetails hung on in southeast Iowa into the 1870s, parts of western Iowa into the 1880s, and northeast Iowa into the 1890s, but were essentially gone from the state by 1900.

Wolves, coyotes and mountain lions were the primary predators on large game animals and also preyed occasionally on livestock, giving settlers a double-barreled reason to persecute them. Mountain lions were the scarcest of the three and were never common. Lion kills were reported from several counties in the 1830s and 1840s, but only in western and southern Iowa after that. The last verified mountain lion was shot in Appanoose County in 1867.

Gray wolves and coyotes, often misidentified and confused with each other, were more abundant and widespread than lions and survived longer. Wolf kills by hunters were reported in most counties, and bounties of up to $2 were paid at various times on both species. Circle hunts for wolves could involve a few hundred mounted hunters surrounding a large area of open land and slowly closing the circle, trapping the wolves inside. By the late 1860s, their numbers were severely depleted; the last verified wolf report was from

For most of Iowa's early history, hunting was an unregulated activity. Special "duck" trains carried city dwellers from Des Moines, Chicago and Minneapolis to hunt waterfowl in the Spirit Lake area.

Cattle were used as livestock on Iowa farms, and teams of oxen helped till the land. Five teams of oxen pulling a plow could break up to two acres a day.

Butler County in 1884. Coyotes are more adaptable and feed on a wider range of smaller animals than wolves, thus the disappearance of large herds of coyote was not as disastrous. Though their numbers were reduced by hunting, coyotes survived in Iowa into the 20th century.

Black bears were the other large predator of pre-settlement Iowa. As omnivores, they ate nearly anything and only occasionally raided livestock. They were valued for their furs, however, and as a surprisingly good source of meat. They were found mostly in northeast and eastern Iowa, but were also associated with forested river valleys that penetrated into the prairies. Under intense persecution, they disappeared from most of the state in the 1850s. The last reported sighting was in 1876 near Spirit Lake.

Smaller predators like bobcats, and red and gray foxes provided little threat to settlers other than an occasional raid on a chicken house, but were valued for their pelts. Bobcats were trapped, shot and poisoned; bounties of up to $1.50 were occasionally paid and a bobcat pelt was worth about 50 cents. Hundreds were reportedly killed near Webster City in the 1850s. Most bobcats were eliminated from Iowa by the 1860s and 1870s, with occasional sightings in northeast Iowa as late as 1894.

Red and gray foxes were persecuted heavily for their pelts but proved very adaptable and have hung on into the 20th century across much of Iowa. Fox pelts brought $1 to $3 in pioneer times and were frequently bountied for $1 each. Both species benefitted from the removal of wolves and coyotes, their chief competitors. Red fox adapted particularly well to the diverse farming landscape that replaced the prairies. Gray fox disappeared where their forested habitats were cleared but hung on in good numbers where forests survived.

Furbearers like muskrats, beaver, raccoon and otter were valuable sources of income to the first settlers. Northern marshes teemed with muskrats that were trapped by the hundreds of thousands each year. Pelts brought from eight to 10 cents apiece, and so many were caught that many settlers survived their early years on the prairie not by farming but by trapping. Muskrats are so prolific that as long as wetlands remained this heavy trapping had little impact on their numbers.

River otters and beaver were less abundant but still common. Trappers would take several a day into the 1850s. Otter pelts sold for $5 to $15 and beaver for $3.50 to $15 depending on size and quality. Otters and beaver were less prolific than muskrats and by the 1860s intensive trapping caused the numbers of each to decline. By the 1880s otter and beaver were disappearing from some counties, and both were essentially gone by 1900.

Wild turkeys, passenger pigeons, prairie chickens and waterfowl were abundant game birds that attracted the attention of settlers and eventually market hunters. All fed occasionally on settlers' crops and were considered pests, and all were valuable as table fare or to sell at local markets.

The spread of railroads into the Midwest in the 1860s and 1870s allowed hunters to reach the best hunting grounds and permitted shipping frozen game to markets in Chicago, Milwaukee and as far as New York City before it spoiled. As a result, game was served as a delicacy in many eastern restaurants in the late 19th century.

As city dwellers developed more leisure time in the 1880s, hunting for

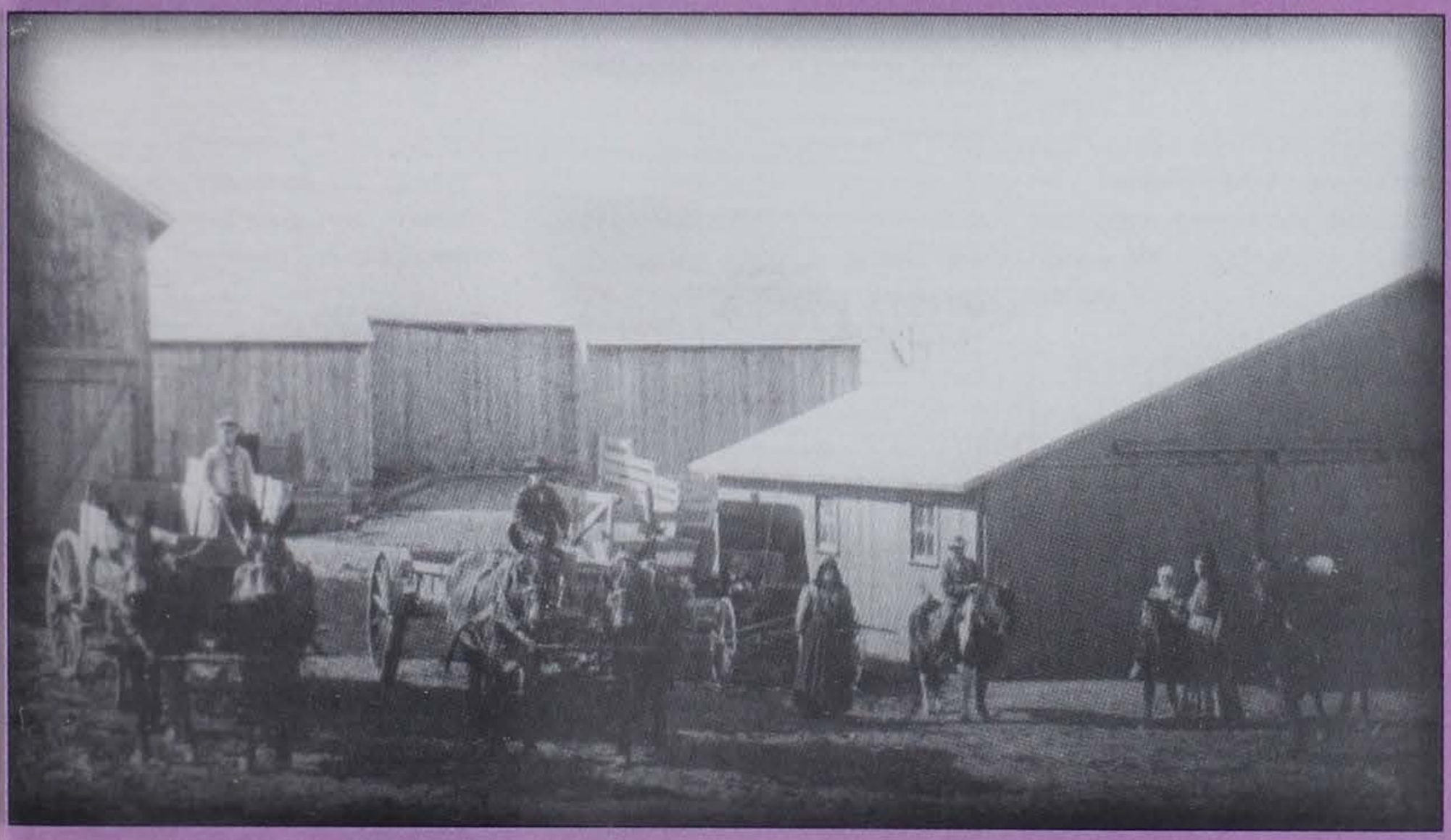
sport or recreation became more popular. Sport hunters took special trains (one called the Duck Special) from Des Moines, Minneapolis and Chicago to the Spirit Lake area to hunt waterfowl. In the 1880s the fare from Chicago was $20 and a hotel room could be rented for $1 per night.

Passenger pigeons were hunted in a variety of ways and only shot when a cheaper method would not work. Pigeons were so numerous that long poles were used to knock young squabs from limbs or to swat migrating birds out of the sky. They were chased by torch light at night from roosts into preset nets or baited into nets on the ground.

Turkey hunters either ambushed turkeys, called them to the gun or shot them from roost trees at night as they were silhouetted against the moon. Turkeys could occasionally be baited into enclosures or taken with leg-hold traps. Prairie chickens were hunted or baited into traps – pointing dogs were used to locate and shoot prairie chicken flocks in stubble fields in the fall; bait traps set later in the winter could be just as productive. Waterfowl were taken primarily by pass shooting as ducks and geese flew between wetlands or over decoys.

Whatever the method, the take of game birds was enormous. A single net could capture 1,500 passenger pigeons. Entire flocks of turkeys could be potshot from the roost on cold winter nights. Hunters could occasionally take 100 or more prairie chickens in a day (seasonal takes of 900 or more chickens were recorded). Sport hunters were able to take up to 100 ducks in a single day. The best market hunters could take up to 3,000 ducks in a season. One group of seven hunters shipped 14,000 ducks east in a single year. A careful hunter willing to pick his shots could take a half dozen mallards or eight or nine prairie chickens with a single shot.

Countless birds taken by hunters were consumed in Iowa and thousands more were shipped annually to eastern markets in the 1870s and 1880s. Uninjured pigeons could be sold as live targets for 10 cents each. Crippled pigeons were dispatched and sold in Milwaukee and Chicago for $1 per barrel. Markets in turn sold them to customers for 40 cents to $1.75 per dozen. Wild turkeys brought up to 50 cents apiece in southeast Iowa



Iowa homestead near Fairfield, 1909. Converting the land to usable farmland required hard work and many hands, and settlers solved their labor problem by raising large families. This homestead, as pictured, housed the family matriarch, her son and his family.

Most of the loss went unnoticed by settlers, and by the time the first naturalists began studying the flora and fauna of Iowa, much of the change had already occurred and went unrecorded.

in the 1850s. Prairie chickens sold for 50 cents to as much as $4 per dozen. Prices for a dozen ducks varied by species: $1.50 for less desirable ducks like buffleheads or goldeneye, $6 for mallards, and up to $15 for canvasbacks, the preferred duck in eastern restaurants.

Other game birds were also sought after by hunters but were less popular because their numbers were lower or their range was restricted. Bobwhite quail, ruffed grouse and woodcock were associated mostly with the brushy edges of the prairie-forest border and along forested river bottoms. All three could be sold because of their delicious flavor but were hunted primarily by sport hunters. Quail hunters could take up to 20 in a day and they typically brought 30 cents to $1 per dozen. Avid woodcock hunters could take 40 birds a day; one market hunter took up to 3,000 woodcock a year in northeast Iowa and they sold for as much as $1 per pair. Ruffed grouse were less numerous, but a hunter could easily take several in a day. Apparently few were ever sold at market.

A variety of shorebirds – long-billed and Eskimo curlews, marbled godwits, upland and golden plovers and common snipe – were frequently hunted and at least some sold at market. The plovers could command prices from $1.50 to $4 per dozen.

Whooping and sandhill cranes were also hunted for the table and because they were a pest in grain fields. Their meat was considered delicious.

For most of Iowa's early history this activity was totally unregulated. Seasons, bag limits, shooting hours and restrictions on weapons did not exist. Settlers shot game for the table year around as they could find it. Sport and market hunters were active primarily in fall and spring so that game would not spoil before it could be consumed or sold. By the 1880s market hunters were building freezers to prolong their hunting opportunities. Ice blocks were cut from lakes in the winter and stored in underground ice houses until needed. Waterfowl suffered the additional indignity of having their eggs collected for food or by egg collectors, a common hobby in the later 1800s. There seemed to be no need for regulation; the game was limitless, far more than anyone could possibly use.

But as hunting pressure increased in the 1870s and 1880s, habitat loss was also accelerating. Iowa was becoming settled. Nearly every square mile of land had several farm families living on it. New farmers looked to more ways to create tillable land. A variety of species that so far had been able to withstand the hunting pressure alone began to be affected by the increasing fragmentation and elimination of their habitats. Whatever the reason – unregulated hunting, habitat loss or more likely a combination of both – much of the wildlife that existed in Iowa for centuries was in severe decline by the late 1870s.

Passenger pigeons, wild turkeys, ruffed grouse, woodcock, and to some extent, quail, were affected by the loss of timber. Pigeons and turkeys required trees for roosting at night; all but woodcock relied on acorns and other seeds for their primary foods; ruffed grouse, woodcock and bobwhites needed the shrubby undergrowth for cover. Much of the forested land that remained into the 1870s was turned into pasture. Cattle, sheep and hogs destroyed the undergrowth and competed with wildlife for acorns and other native foods.

The last large flights of pigeons were in 1868 or 1869. Smaller flights continued into the mid 1870s, dwindled more into the 1880s and 1890s and were gone by 1900. The same trend occurred throughout their range in the eastern United States. In 1914, the last passenger pigeon died in the Cincinnati Zoo and the species was declared extinct. Wild turkeys were gone from northeast Iowa (Clayton County) by 1854 and from most of central Iowa by the 1870s. They hung on in south-central and southeast Iowa into the 1890s. The last wild turkeys reported in Iowa were seen in Lucas County in 1910. Ruffed grouse were able to hold on into the 20th century only in the most heavily forested counties of northeast Iowa.

Prairie chickens and bobwhite quail fared somewhat better. Opening the prairies to grain farming provided an alternate winter food supply in grain stubble. More reliable foods allowed their numbers to increase and their range to expand as long as there was enough prairie remaining for nesting and winter

cover. Prairie chicken numbers may have peaked in the 1870s. After that chickens and quail began declining as too much prairie was converted to crop fields. Both hung on at lower numbers well into the 20th century.

Waterfowl and shorebirds continued to migrate in large numbers through Iowa until the end of the century. Fewer were produced in Iowa as prairies were turned over and wetlands drained, but spectacular migrations from breeding grounds on the prairies to the north undoubtedly softened the blow of local habitat loss. By the 1890s, however, the loss of wetlands was taking a toll and by 1900 market hunting was a thing of the past. The last sandhill and whooping crane nests were found in Hancock County in 1894, the last long-billed curlew nest in 1890 and the last giant Canada goose nest in 1910.

Clearing of forests, conversion of native prairies to farm fields and the draining of wetlands eliminated far more species of songbirds, reptiles and amphibians than just the game species listed here. Most of the loss went unnoticed by settlers, and by the time the first naturalists began studying the flora and fauna of Iowa, much of the change had already occurred and went unrecorded.

Today, the benefit of hindsight makes the loss of our natural heritage seem like a disaster that should have been prevented. But our predecessors lived in a different culture. Horace Greeley said "Go West, young man…!" and they did, believing that it was their destiny to conquer the wilderness and make a better life. They did not see themselves as exploiters of our natural resources, but as individuals faced with the realities of surviving and raising a family under unimaginably harsh conditions.

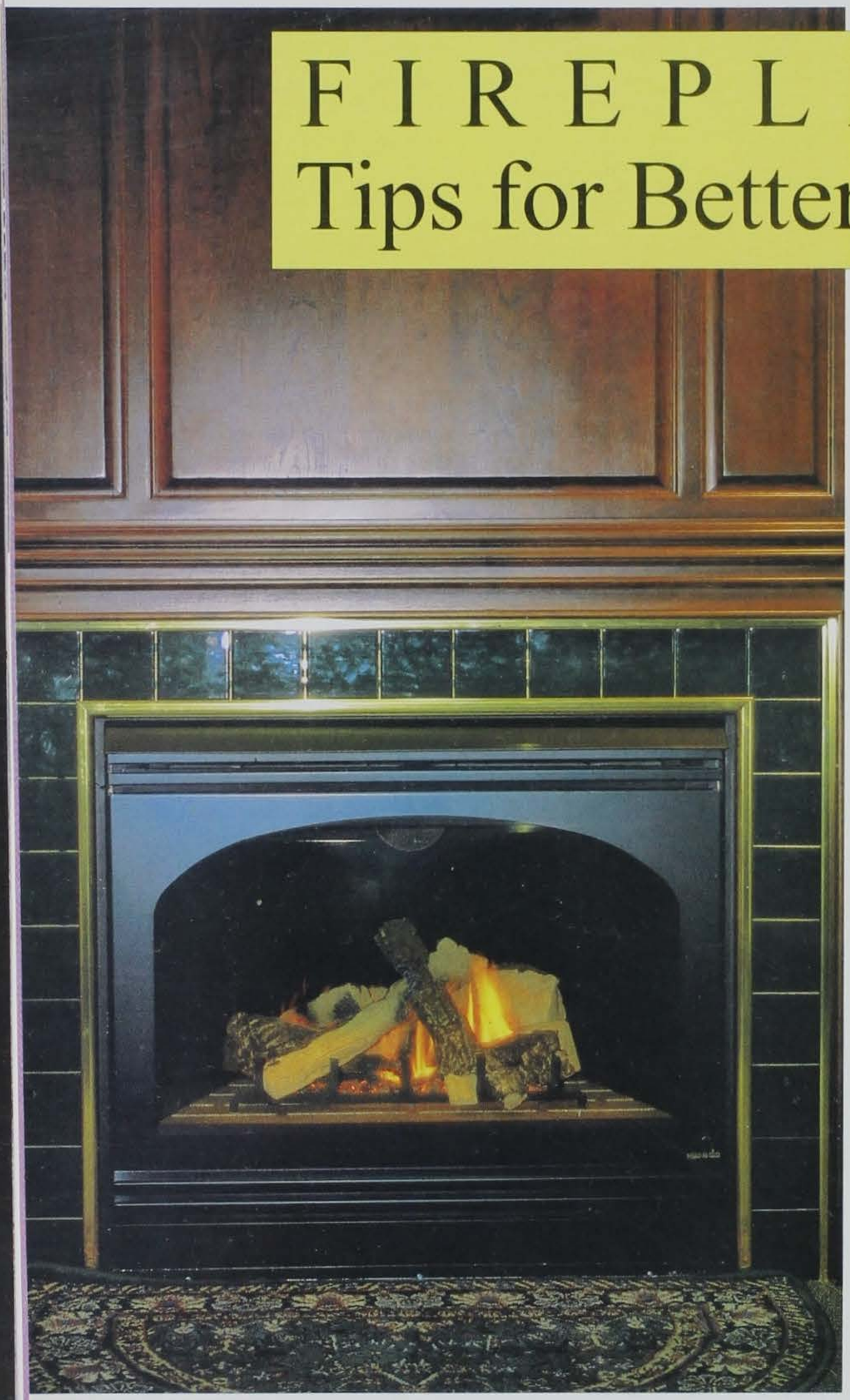
They were extremely successful. In less than a century, the landscape of Iowa was changed by settlement more than that of any other state. By 1900, most of our native wildlife was either gone or reduced to such low numbers that rabbits and squirrels were the only game animals available to most hunters. And it seemed unlikely that this would ever change.

Much of the information about the destruction of Iowa's native habitats and wildlife was taken from the book "A Country So Full of Game" *by Dr. James Dinsmore, Iowa State University. Photos courtesy of the State Historical Society of Iowa.*

Terry W. Little is the wildlife research supervisor for the department in Des Moines.

Iowa man with work horses and threshing machine. With modern machinery, particularly the steel plow, settlers discovered the fertile soil beneath Iowa's landscape. What had taken 10,000 years to develop was gone in one generation.

FIREPLACES
Tips for Better Burning



His swollen, arthritic hands grabbed the hatchet; bowed legs and pained knees straddled the wood chunk.

It was two decades ago; my grandfather and I were splitting wood. Then a young boy, I watched his aged body transform. The hatchet sang and hummed a metallic melody as it rose and fell like a piston. Wood split off sideways like shells ejected from a gun; like a spinning top, the chunk of wood danced in place from the hits. He sang a little lyric "Born and raised in the timber…" while the wood spun, getting thinner until it was reduced to fine kindling. It took seconds. The speed and grace, precise hits and repetition were skills I haven't seen since.

Back then, in the 1970s, many people used fireplaces to heat, and many still do today. This year, increased fuel costs and a cold chill in the air have ushered in the wood-burning season. Whether burning frequently for heating — or occasionally for ambiance — good burning practices can keep Jack Frost outside, reduce harmful smoke and maximize wood supplies.

I remember helping my dad cut wood — felling, cutting, chopping,

Article by Brian Button
Photos by Clay Smith

splitting and stacking — in steamy summer heat and bitter winter air in northeast Iowa. One year, I remember wood too stubborn to split with a mall, sledge or wedge. I remember the ironwood, brambles, thickets, bees and trees surrounded by nettles and barbed wire. I'll never forget the feeling of sweat mixing with sawdust, or hauling frozen logs through hip-deep snow. I dreaded these tasks, but enjoyed them at the same time.

Too bad those efforts were compromised by a low-efficiency fireplace. Many older fireplaces are not good heaters; instead they are inefficient and create cold drafts. Newer, certified fireplaces and wood stoves, however, are substantially more efficient. Some use a catalyst to help burn up gases. In non-catalytic

Efficiency is the Key

Open-face fireplaces waste wood because excess air makes the fire burn too quickly. Installing some types of glass doors or older fireplace inserts can actually create more pollution, too, by overly restricting airflow, causing smoldering. It may be wise to upgrade to a new unit to harvest the benefits from the latest heat transfer technology and combustion efficiency. Some units achieve more than 70 percent efficiency while traditional fireplaces may yield 10 percent.

- Regularly observe the chimney for emissions. Smoke is unburned fuel, signaling poor combustion. Fifteen minutes after start-up or refueling, only heat waves, not smoke, should be seen.
- Choose wisely. Do not select a new model that puts out more heat than you need because a big heater burned slowly usually creates more smoke and wastes more wood than a smaller heater burned fast.
- Gas units are much cleaner, more efficient and new models look very realistic.
- Wood reduced to glowing coals should be stoked with paper and kindling to establish a vigorous fire quickly before adding logs.
- Wood smoke emissions contain harmful substances, such as fine soot particles, toxic and cancer-causing substances, and carbon monoxide. Be considerate and don't smoke out your neighbors or yourself. Drafty houses can pull emissions back inside, emissions that can go undetected.
- Ensure the wood is clean, dry, split, covered and cured a year.
- Heating with central furnaces is much more efficient than using older fireplaces.
- Never burn trash, chemically treated wood or any substance that emits dense smoke.
- Give the fire a lot of air: build small, hot fires. Use several small logs rather than letting one large log smolder.
- Don't "bank" the firebox or try to hold a fire overnight. Do not damper down at night to let the fire smolder.
- To maintain heat and save firewood, homes should be properly winterized. Attics, walls and basements should be properly insulated. Windows with loose putty or cracked glass should be repaired. Attach new door sweeps to prevent cold drafts, shut off unused rooms, and use window seal kits.

— BB

models, a second combustion chamber or baffles above the hottest area of the firebox helps mix gases with enough air to burn them completely. Both types use gases older fireplaces waste to produce greater efficiency while reducing emissions and chimney flue buildup. The heat they put off is impressive.

For example, a few winters ago, after skiing six miles into a remote, northern Minnesota cabin with backpacks stuffed full of provisions, some friends and I spent New Year's in temperatures ranging from minus 8 to minus 28 degrees. Fortunately, a new, super-efficient wood stove heated the cabin. While wolves howled in the timber, we stayed snug inside, feasting on a fire-warmed pot of stew. We could have frozen with an outdated fireplace. With an old fireplace, uncombusted gas would have been wasted up the flue, but this unit had a second combustion chamber above the main firebox, and consequently, it reached temperatures hundreds of degrees hotter.

The next morning, we went outside to fetch more wood. From the other rental cabin across the way, a frosty group of blanket-wrapped skiers gathered near the community woodpile. Between chattering teeth, trembling and quivering, they joked it was warmer outside than inside because their firebox wasn't putting out enough heat. We glanced at their cabin and the chimney was emitting a thick, ropy opaque pall of smoke. It was a real fumigator. No visible smoke was coming from our chimney, despite the stoked and red-hot iron caldron inside.

They needed help and asked why their wood stove wasn't working. Although they hadn't been there

All About Wood Smoke

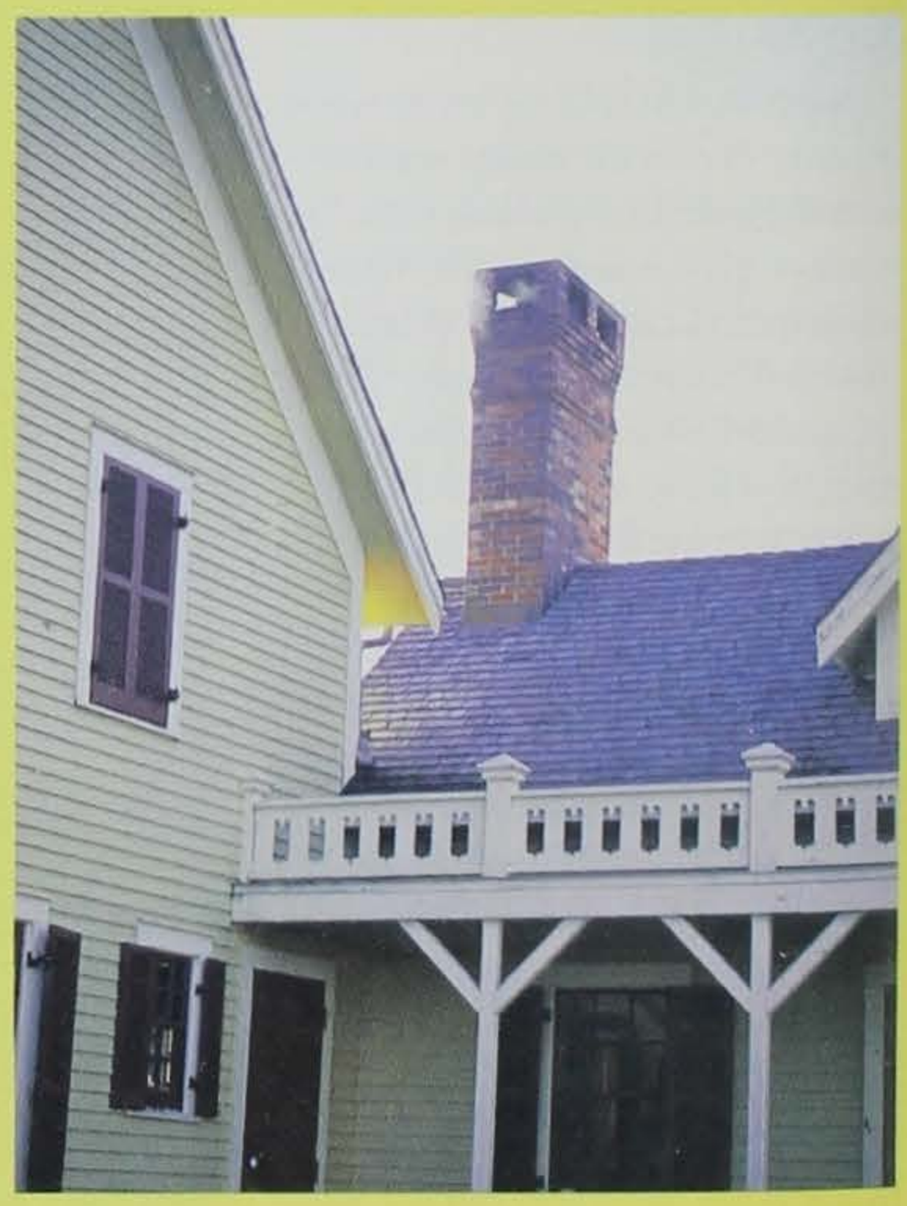
When wood burns, a complex chemical reaction occurs to produce heat. Lignin and cellulose break down into methane, hydrogen, tars and oils. When hot enough, these gases burn rapidly to provide heat and visible flame. Oxygen in the air is needed for combustion. If not enough air is provided, the fire will smolder, the gases will only burn partially, and the rest will be emitted up the chimney as wasted fuel.

In the flue, emissions cool and condense into tiny droplets of oils or tars called particulate matter, mostly less than two and a half thousandths of a millimeter (2.5 microns), or about the thickness of a human red blood cell. Too small to see individually, together they form white or bluish-colored smoke. Since smoke is wasted fuel, the more the chimney smokes the more fuel and pollution you are putting into your air. Remember, "When you burn it, you breathe it."

After the vigorous, high flames from burning gases, carbon in the wood coals will still burn very hot. This charcoal burns much cleaner than the flame phase with very little smoke emitted.

The DNR's main concern about wood smoke is particulate matter that can harm health and damage the environment by reducing visibility and adding to total emissions in the airshed. Clean burning is especially important, as cold air can trap emissions underneath a warm layer. These thermal inversions are common, especially in small valleys and during cold nights when colder, heavier air drops to the ground and warmer air above acts as a lid to concentrate wood smoke, vehicle and industrial emissions. Reducing emissions equals cleaner air, improved wood heat with less creosote, cleaner flues and greater comfort from less wood.

— BB



long, they had already burned three times the wood we had. A quick look inside told the story.

In their lukewarm firebox, we found one huge log. Small, hot fires are more efficient and easier to maintain. Large logs don't leave space for proper airflow allowing flames to develop and burn gases from the wood. Also, the log was not dry, reducing the burning efficiency.

The flue was damped down, starving the fire of air and creating smoky conditions. They also had levered open the secondary combustion chamber before the firebox had reached high enough temperatures, in direct opposition to the instructions posted above the unit. New models are complex, but easy to operate if instructions are followed.

We stoked the firebox with properly cured and split wood, first using kindling to establish draft and provide enough flame to ignite larger pieces. When the built-in thermometer showed the firebox hot enough, we opened the second combustion chamber to burn off residual gases. Within a few hours, their cabin had thawed into a Northwoods sauna.

A fireplace doesn't have to be an energy waster or air polluter. Modern technology and a few rules of thumb can make it efficient. And there is nothing like a fireplace to take the edge off a cold January day in Iowa.

Brian Button is an information specialist for the department's air quality bureau.

The Franklin Stove: Early American Fireplace History

Wood heat is as American as bifocals, the odometer and daylight savings time — all ideas and inventions contributed by Benjamin Franklin. He knew fireplaces lost heat through the wall so he designed the first freestanding firebox that could be placed in the center of a room to spread warmth all around. Thick, cast iron walls absorbed heat to provide comfort even after the fire went out.

But the original Franklin design was flawed — it vented smoke from the bottom and didn't draw in air. It was a failure, that was until Philadelphia's David Rittenhouse added a long L-shaped stovepipe to create airflow through the fire and vent smoke up to a wall chimney. By 1790, the stoves were widely used, improving the lives of early Americans. Those same stoves continue to be a fixture in American homes more than 200 years later. But the "Rittenhouse Stove" name didn't stick; they are still called Franklin stoves today.

— BB

Ben Franklin's design was the precursor to today's freestanding wood stove.

by Kevin Hanson

Winter Walleyes on the Mississippi

The conversation went something like this.

"Sixty degrees below zero wind chill factor. That's what they're calling for," I told him.

"It's gonna be cold but I think there are fish to be caught. Still want to go?" he asked.

"Well, I have the day off work. Let's do it."

So it was decided. It was the middle of January 1998, the coldest day of the year and Mike and I were headed for the Mississippi River for some walleye fishing. It was dangerously cold outside; probably too dangerous to be in a boat on the Mississippi fishing the turbulent water below Lock and Dam number 12 in Bellevue. It wasn't the wisest thing to do, but then you don't know Mike.

Mike is a walleye fanatic from the little town of Springbrook, less than 10 miles from Bellevue. When it comes to winter walleye fishing, he's like a little kid with a video game. Win or lose, he can play for hours, any time of the day, any day of the week.

I met Mike while I was working as a creel clerk for river biologist John Pitlo, who has been studying walleyes and saugers on the Mississippi River for years. Part of his study involves measuring the number of walleyes and saugers caught from November to April in the tailwaters of the locks and dams at Bellevue and Guttenberg.

Creel counts are most effective during that time because, as the water temperature drops in the fall, walleyes and saugers migrate upstream. Their ultimate destination is the spring spawning grounds.

Because of the locks and dams, many walleyes and saugers cannot make it to the areas their homing instincts tell them to go. Blocked from continuing upstream, they begin to settle in the nearby deep-water habitat. They "stack up" in the first mile or so below the dams, where they remain relatively active throughout the winter. The high concentration of one of the most sought-after game fish naturally draws the attention of anglers.

As a creel clerk my job was to wait at the boat ramp and interview anglers as they came in to monitor fishing success. Anglers looking for a way to remedy cabin fever may be interested in the results of those studies.

Although the title of the article is "Winter Walleyes on the Mississippi," the truth is, most of the fish caught in the winter on the Mississippi are sauger. Sauger typically do not grow as large as walleye, but what they lack in size they make up for in numbers. There were many days during my studies where sauger accounted for more than 80 percent of the fish brought in that day.

Walleye and sauger are closely related members of the perch family, whose popularity among anglers is growing rapidly. Walleyes are found throughout the state, and the success of our hatchery and stocking program has contributed to their popularity.

The sauger is the big-river cousin to the walleye. Found in great numbers in the Mississippi and Missouri rivers, their inland travel is mostly limited to the lower portions of Mississippi River tributaries in the eastern part of the state.

Although similar in appearance, there are visible differences between the two. Walleyes are sometimes called "greenies," because river walleyes often have dark green sides, typically blending to yellow above the belly. Their undersides are white. Saugers have dark "saddles" which appear to wrap across the back and often extend below the lateral line.

Walleyes have a distinctive white spot on the lower tip of their tail fin, but true saugers do not. The cheek of a walleye will have very few scales, if any, and will feel almost smooth. Sauger cheeks are more scaly and rougher to the touch.

By far the easiest way to tell the difference between these two fish, though, is by examining the spiny portion of the dorsal fin on their back. Saugers have two or more rows of spots on the fin, while walleyes do not. Following the "saugers have spots" rule will help ensure a meeting with a conservation officer isn't a costly one. There is currently a 15-inch size limit on walleye while there is no size restriction on sauger. In addition the daily bag limit is 10 fish but no more than 6 walleyes can be kept.

When To Fish

Winter fishing is generally considered the period between mid-October when the fish begin to migrate to early April when the fish spawn and move back downstream. By far the most productive times to

Walleye

Sauger

By far the easiest way to tell the difference between walleyes and saugers is by examining the spiny portion of the dorsal fin on the back. Saugers have two or more rows of spots on the fin, while walleyes do not. Also, river walleyes typically have dark green sides, blending to yellow above the belly. Their undersides are white. Saugers have dark "saddles" across the back and often extend below the lateral line. Walleyes have a distinctive white spot on the lower tip of their tail fin, but true saugers do not.

fish are the first few weeks in November (the late fall period) and most of March into early April (the pre-spawn period). Fish are more active during that time, evident by the increased number of limits I checked during creel surveys.

The downside is the productivity of winter walleye fishing on the river is no big secret, and you may have to contend with heavy fishing pressure.

Those who have seen film footage of grizzly bears congregating below the McNeil River Falls in Alaska catching spawning salmon can appreciate what river walleye fishing can be like. When the fishing is good, grizzlies can coexist peacefully. Walleye anglers are much the same. To avoid the large crowds, don't fish on the weekend and fish more in mid-winter when pressure is lighter.

Besides the cold, midwinter has another draw back. At some point, boat ramps will become iced in. Subsequently, tailwater fishing may be shut down for an extended period, depending on the severity of the winter. Local bait shops are the best source for boat ramp conditions.

Fishing, regardless of the time of year, is best during periods of stable water conditions. Again, check with a local bait shop or log onto the Army Corps of Engineers' website (www.usace.army.mil\) to find out what river levels are like. If the water is too high, too low or changes dramatically from day to day it will be tough to find fish. Short term changes in water levels play a more important role in angler success than short term changes in weather.

Tackle and Techniques

The four main ingredients for successful midwinter walleye fishing are live bait, light tackle, patience and persistence. Remember, the metabolism of most fish is slowest in the winter. Although there may be a large concentration of fish below the boat, not all will be hungry. The meal they had yesterday may be enough to get them through until tomorrow or even later.

A sensitive medium- to light-action spinning rod works very well for winter walleyes. Light line is important for detecting soft-biting fish Four to 6-pound test is often preferred, but due to high zebra mussel populations in some areas (their

harp-edged shells can cut line asily), you may want to go with a ieavier more abrasion-resistant line to ave tackle.

Vertical jigging is possibly the nost effective tactic. Use the smallest ig possible that will still allow you to :eep a straight line to the bottom. However, midwinter fish often hold in leep water and heavier jigs (1- to 1 1/ ?-ounce) are sometimes required to each these fish. Round jig heads vork well but jigs with a slimmer profile, like tear-shaped flathead jigs, "swim" better in heavy current. Good colors for jig heads and jig bodies are white and chartreuse, but almost any color will catch fish. Getting the bait o the fish is typically more important han color.

Boat position and handling can also be critical to success. Being able o identify productive areas and work he motor to drift with the current but still maintain a straight line to the bottom will put you in the zone and allow you to feel the light biting fish.

"Stinger" hooks may also help put more fish in the boat. A "stinger" is a small treble hook tied to a 3- or 4-inch piece of line, which is then attached to he jig hook. It can hang freely or be hooked to the tail of the bait.

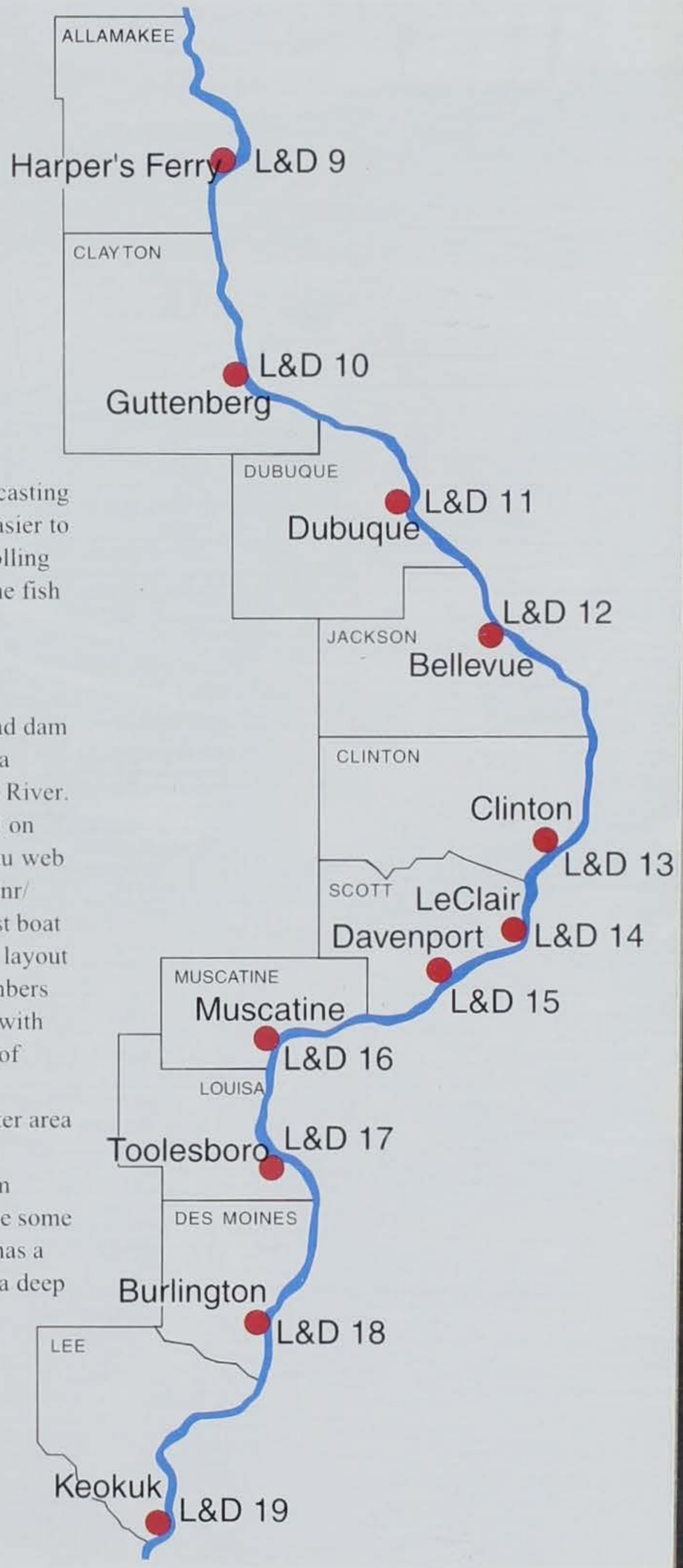
Blade baits are also popular with anglers on the river. Blade baits are thin metal lures weighted in the center, which are most effective when vertically jigged. Three-way rigs with crank baits, lindy rigs or floating jig heads will also work, but they should be fished as slowly as boat positioning and current will allow.

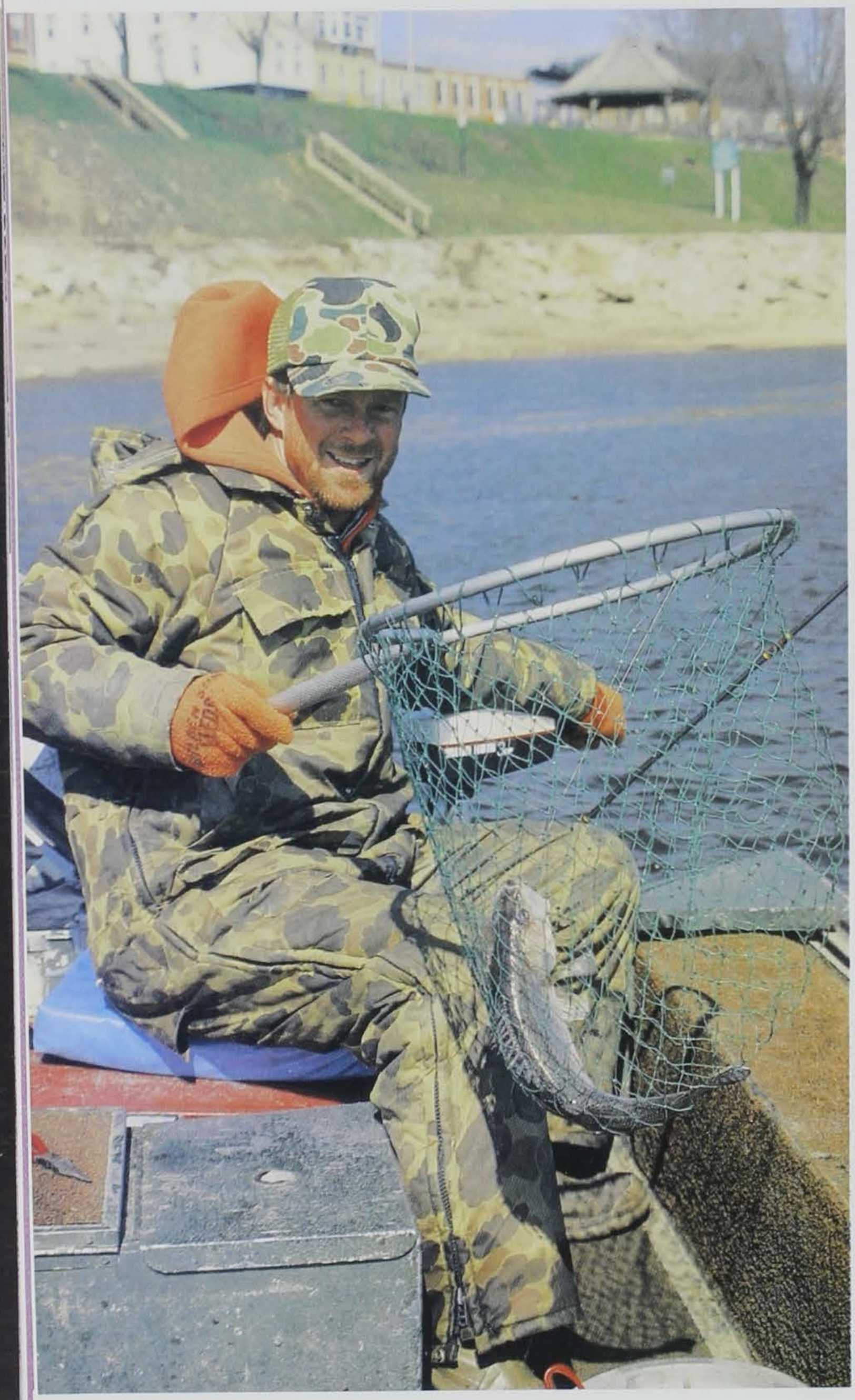
During late fall and pre-spawn periods, a greater variety of tackle and techniques will prove successful because fish are more active. Deep diving crank baits, three-way rigs with crankbaits or Lindy rigs can be trolled more quickly and are a great way to cover a lot of water to find active fish. Six- to 7-foot medium-action bait casting rods and reels make it easier to adjust line depth while trolling and feel the lure when the fish strikes.

Where To Fish

There are 11 lock and dam structures along the Iowa border of the Mississippi River. Area maps can be found on the DNR fisheries bureau web page (www.state.ia.us/dnr/fwdiv/) to find the closest boat ramps and see a general layout of the river. Local chambers of commerce can assist with lodging and other forms of entertainment.

Although the tailwater area below any lock and dam structure varies in bottom habitat type, they all have some basic similarities. Each has a lock and dam structure, a deep hole below the dam tapering to shallower water directly down stream, a main channel and supporting wing dam structures and shoreline





areas along the channel where shallower water may occur.

Boaters cannot come within 150 feet of the dam and the auxiliary lock structure, where the water is dangerously turbulent. The wall of the main lock outside the restricted area is often a good place to locate fish because of the underwater structure found there.

The scour hole below the dam is the deepest part of the river and may be up to 100 feet deep. Downstream, the turbulent water forms a large deep-water hole tapering to shallower water. Although walleyes and saugers can be found throughout the area, they are often concentrated on the edges of the hole. The depth and position of the hungriest fish may change from day to day, but subtle changes in the bottom contour which provide breaks in the current can be consistent producers.

The shorelines below any lock and dam should always be checked for fish. When water conditions are right, hungry fish will move into these shallower areas to feed on the available forage.

Wing dams will also hold large numbers of fish and can be very productive, especially for big walleyes. However, these big fish are notoriously finicky. Technique and finesse can mean all the difference.

For example, I one day creeled an angler who was well known for producing big walleyes. He was often seen on his favorite wing dam trolling crankbaits. Others would try to follow but none could match his success. His advantage was he knew the wing dam structure and was able

to control his boat and bait in order to pick fish off the notches in the wing dam where more active fish congregated.

Another day I talked to several anglers who left with empty live wells and who were convinced the fish just weren't biting. Late in the day, however, two anglers who had nearly caught their limit of 18- to 22-inch walleyes came in. They had separated themselves from the crowds and had found structure between two wing dams that held nice fish. They said the area was no bigger than a large automobile and the fish were so spooky they could not fish directly over them. They used only their trolling motor, and even turned off the depth finder to get close enough to cast to them with a 1/8-ounce jig with no body, tipped with a minnow.

Preparing for the Elements

One thing is for certain, it's going to be cold, and even the best protection can hold out only so long. However, there are several things you can do to stay comfortable for a longer period of time. Long underwear and coveralls are a must. Because of the added bulk, consider purchasing a larger personal flotation device strictly for these occasions.

Good boots are also very important. If the boat has a thin bottom, installing insulation or some other buffer will keep feet off the cold floor and help them stay warmer. Gloves should be warm but not too cumbersome. Choose gloves that will allow you to detect bites and work your reel. Hand warmers can be a life saver. On cold days, one in each glove and one in each boot can make all the difference.

Many anglers bring propane stoves and heaters, which can make for a more enjoyable time. Nothing tastes better on a cold winter day than a hot cup of coffee made fresh in the boat. Some anglers will carry a coffee can and charcoal; enough to supply a little heat and provide a warm spot for hands while putting on bait or changing lures. Remember, with flammable materials on board, keep the heat source away from combustibles and make sure the required fire extinguisher is within reach and in good working order.

Although that January day in 1998 was bitter, the great fishing kept our minds off the cold. The fish we kept were flash frozen and stacked in the live well, which at that point, was anything but a live well. We would occasionally make jokes about how cold it was, but our laughter would soon be cut short by another blast of arctic air charging down from the bluffs. Although misery was only five layers of clothes and four hand warmers away, we had the river to ourselves and we were having a great time. With 15 fish in the live well, we decided it was time to get out of the cold.

"You know, it probably wasn't the smartest thing to come fishing on a day like this."

I said as we headed for the boat ramp.

"I know, but it beats cabin fever."

[Walleyes] "stack up" in the first mile or so below the dams, where they remain relatively active throughout the winter. The high concentration of one of the most sought-after game fish naturally draws the attention of anglers.

Kevin Hanson is a fisheries technician for the department at the Fairport Fish Hatchery.

Iowa's New Prairies

by Tracey Dickinson

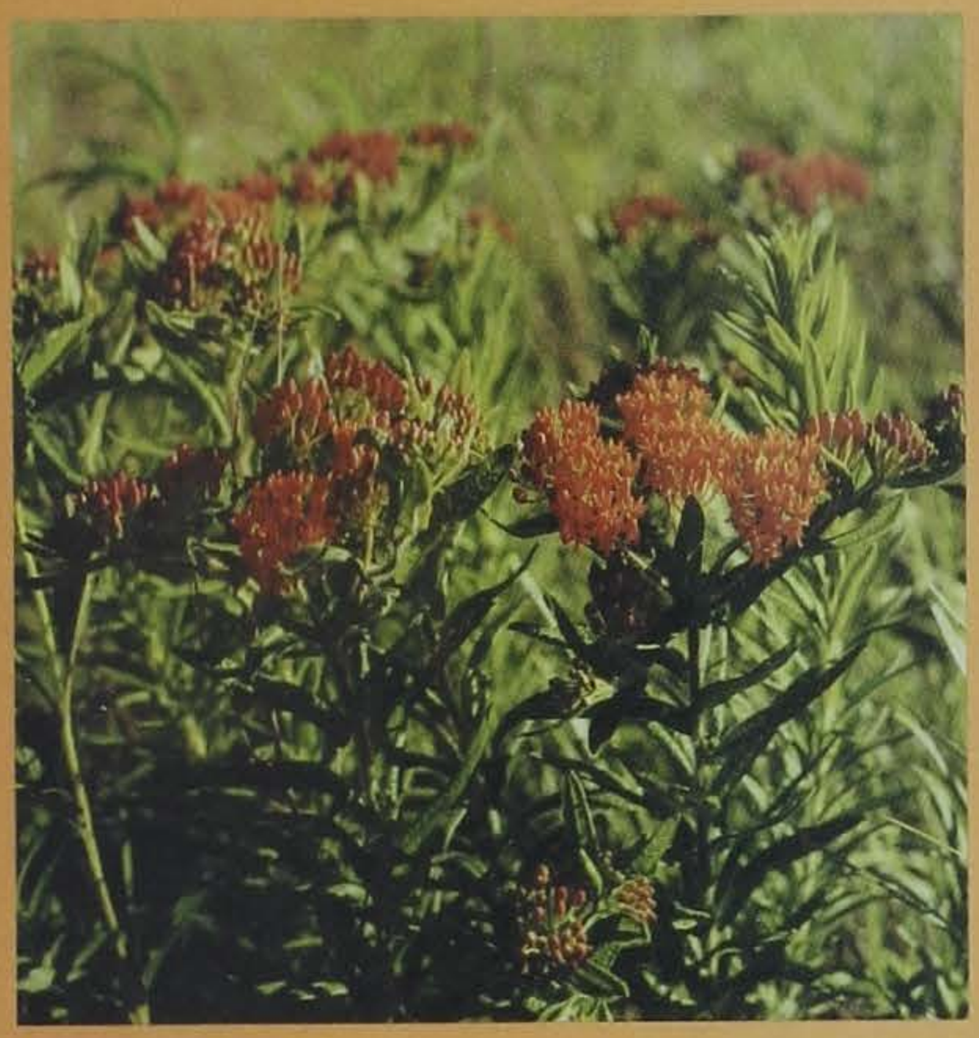
Many years before our great-grandparents moved west of the Mississippi River, Iowa was a great prairie — with wildflowers and tall grasses interspersed with stands of mighty trees.

As the state was settled, however, towns and roads took over. Managing roadsides, eventually, became the duty of the Iowa State Highway Commission, and later, the Iowa Department of Transportation (DOT). Planting imported European species, spraying and mowing were the norm. A great deal was learned from those early management experiments.

High maintenance costs and the invasion of noxious weeds such as Canada thistle, along with a growing interest in restoring Iowa's native landscape, has since produced a new school of thought in roadside mainte-

Photos courtesy of the Iowa Department of Transportation

Today a variety of prairie vegetation graces Iowa's roadsides. Clockwise from top left: black-eyed Susans, butterflyweed, asters, prairie mix of big bluestem and blazing star, and blazing star.



nance. The return to native plants is changing how rights-of-way look and are maintained. In the past 10 years, more than 30,000 acres of roadsides have been planted with native species. Experience has shown these plantings produce several benefits, not the least of which is reduced maintenance.

"The first year the plantings need to be mowed," said Steve Holland of the DOT's office of design. "After that, spot mowing may be needed, but the maintenance is really minimal."

The plantings are getting noticed. Jim Van Sickle, DOT garage operations assistant in Ames, points to a large stretch of prairie along Interstate 35 between Story City and Ames.

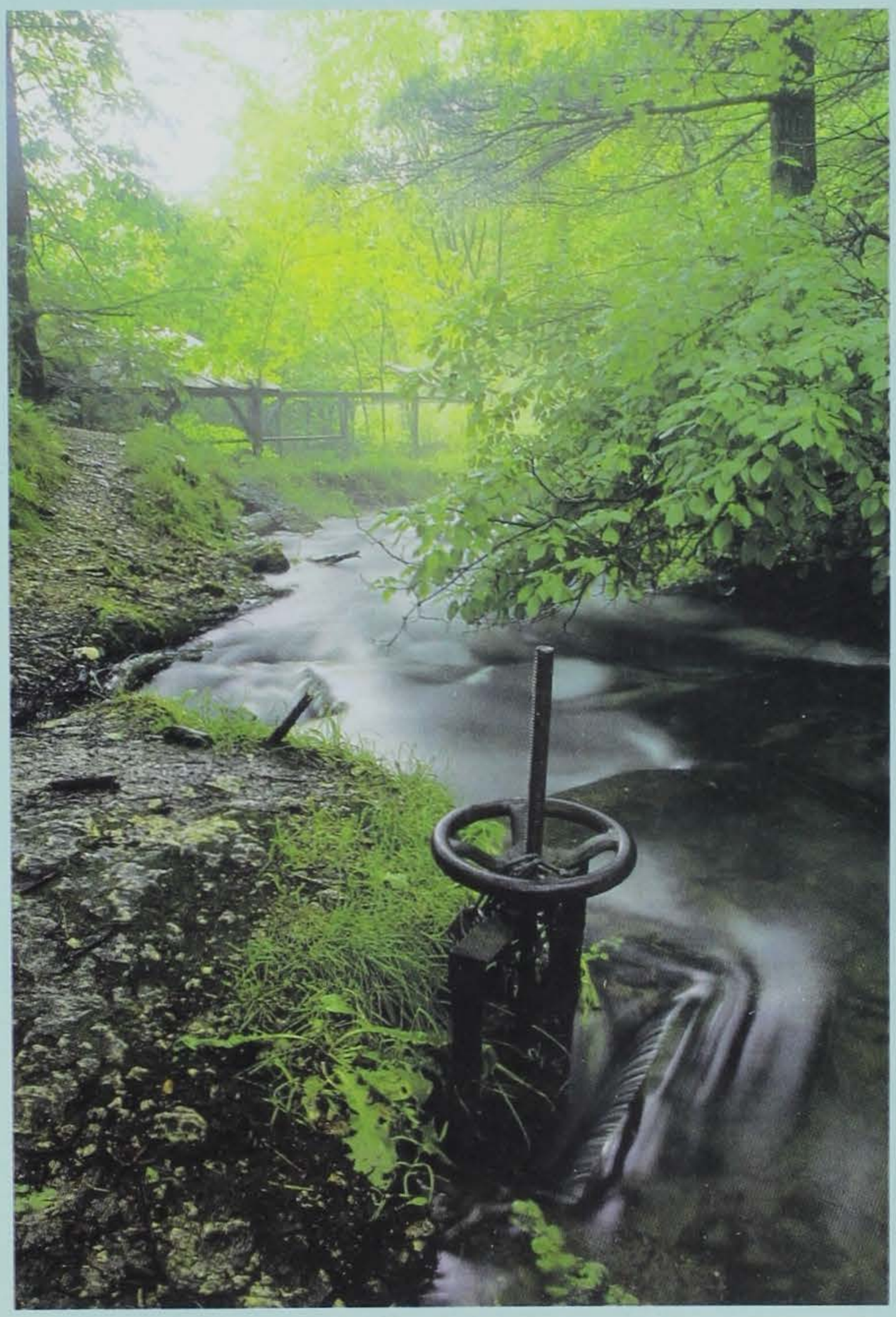
"At first we were a little hesitant. We had a good stand of grass there already, and we weren't sure about the new plantings," he said. "The first couple of years they didn't look very good, but now we get lots of compliments and the native grasses and wildflowers act as living snow fences and help quite a bit with winter maintenance. In the summer, there is almost no maintenance. We have to mow a few volunteer trees, but the wildflowers and grasses have really reduced the thistles we would have to spray or mow."

The initiative is just one way the DOT is working to protect the environment by using less herbicides, creating wildlife habitat and beautifying Iowa roadsides.

Tracey Dickinson is an information specialist for the Department of Transportation in Ames.

Volunteer Water-Quality Monitoring in Iowa

IOWATER



Article by Jessica Tarbox
Photos by Clay Smith

At first, the term "benthic macroinvertebrate key" is a little alarming. "Turbidity tube" isn't much better. And "pH levels" elicits a shudder reminiscent of high school chemistry class.

Although to a novice, these words may be difficult to comprehend, they are familiar to the trained water-quality monitors of the IOWATER program. Through training workshops, volunteer monitors are issued these and other tools. For a short time anyway, they shed their everyday image of farmer, high school teacher, environmentalist, student or parent to become scientist for the good of Iowa's water resources.

IOWATER, however, is much more than alien scientific words and testing equipment. It is a statewide program designed to protect and improve water quality by establishing and supporting a volunteer water monitoring program. Since its beginning two years ago, the program has enticed volunteers from all walks of life and continues to attract Iowans interested in learning more about and protecting the state's water resources.

The program is citizen-based and directed by individual volunteers' needs. The state provides the funding and direction under the Geological Survey Bureau, but citizens perform the monitoring. IOWATER coordinator Rich Leopold said the program addresses local water sources the government does not have funds, time or employees to monitor.

"A main water source may be polluted, but there may be 20 streams feeding into it," Leopold said. "There's no way the DNR can monitor that."

That's where citizen water monitoring enters the scene.

Individual water monitoring has existed in Iowa for many years, through projects such as the Izaak Walton League's Save Our Streams and area education agencies' Iowa Rivers Project. But not until a coalition of several organizations gathered in May 1998 did a statewide program exist to give all Iowans an opportunity to get involved in water quality.

An IOWATER advisory committee was formed with representatives from the Iowa DNR, the Iowa division of the Izaak Walton League, the Iowa Environmental Council, the Iowa Farm Bureau, the Natural Resources Conservation Service and the University of Iowa Hygienic Laboratory. EPA 319 funding, the Sportfish Restoration Fund and the DNR provided the initial financial support.

The organized union of environmental and conservation groups was a success. In its first year, IOWATER developed the original program manual, hired the first IOWATER coordinator and conducted its first workshops at the Springbrook Education Center. Logistical success aside, IOWATER also drew substantial public interest and by 1999 was already in need of expansion.

In October 1999, IOWATER's headquarters moved from the education center to the Geological Survey Bureau in Des Moines, and several new program partners — including Trees Forever, area education agencies and the Iowa State University Extension — joined the advisory committee. A new clean water initiative enacted by Governor Tom Vilsack increased the funding allotted to IOWATER.

The success of the program can be measured, to some degree, by its volunteers. This summer, over the course of 14 workshops, 524 citizen monitors were trained to collect data from streams in their communities. That figure does not include the family members, friends and colleagues in tow on monitors' trips to the banks of the streams.

It also does not include the

IOWATER offers Iowans an opportunity to act on their concern for water resources.

Caddisfly

Water quality monitoring is a way to get involved in your community.

numerous students who will benefit from their teachers' participation in the workshops. This summer's first workshop, in Bettendorf, was targeted specifically at secondary education instructors. Curtis Lundy, IOWATER monitor and volunteer contact for the first workshop, helped organize the partnership between IOWATER and interested teachers in the Quad Cities area.

"Two years ago I was at Duck Creek in Davenport and I asked myself the question, 'Is it healthy?'" he said. He remembered the Izaak Walton League's Save Our Streams program, and he "got equipment and contacted teachers in our area... to go out with the kids and sample. But it wasn't really answering the question."

Lundy went to Leopold to organize a workshop for these teachers, and this past April, 42 people — 30 of whom were teachers — attended the session to learn how to better incorporate water quality monitoring and water appreciation into the classroom.

At the summer workshops, potential monitors participate in one- to two-day instructional sessions learning how to use the testing equipment, how often to monitor and how to record the data. Before any testing is done, however, Leopold encourages volunteers to determine why they are monitoring. A child may be playing in a questionable stream, or a pipe near a neighborhood water source may be a potential problem. The workshops teach citizens how to

dentify the question they are trying to nswer and help tailor programs to pecific communities and time ommitments.

Diane Forristall, a landowner rom Macedonia, first learned of an OWATER workshop in her area rom the local newspaper. She said s a landowner, she enrolled in the ession "mainly because we have a eed lot and I wanted to make sure our water was safe."

Forristall attended the June 1 session in Oakland with a "real mix" of people, including "educators, county naturalists, students, NRCS people taking it for their own information, and some who are just concerned citizens . . . just environmentally conscious," she said.

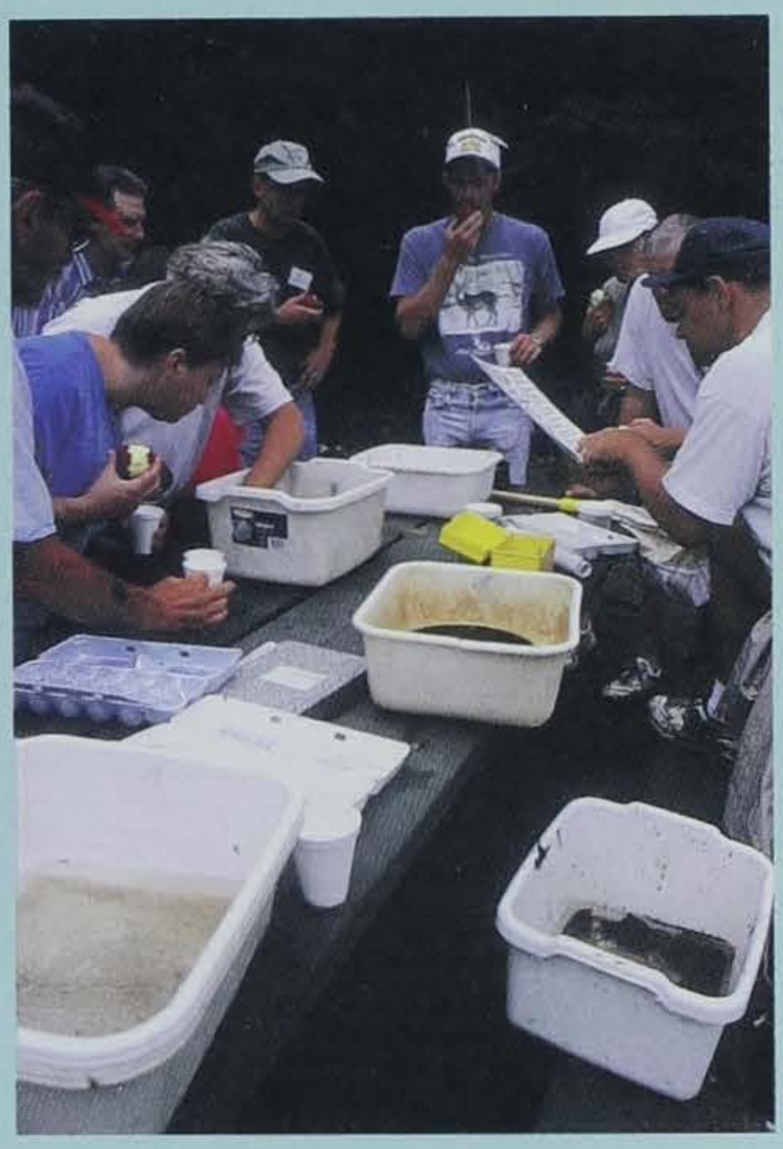
Individual time commitments and needs help determine what testing a monitor may do — biological, chemical and physical. Each involves distinctive time frames.

For example, if monitors are curious about pollution in a nearby stream, they might choose biological sampling. Biological sampling involves collecting bugs inhabiting the stream. That's where the benthic macroinvertebrate key comes into play. Monitors compare the bugs caught to the bugs listed on the key to determine the level of pollution. Some bugs are more tolerant of pollution than others; if a pollution-intolerant insect such as a mayfly is found in a stream, the water is most likely not very polluted.

Forristall found a mayfly in one of the three sites registered in her name in Pottawattamie County, indicating the quality of her water is good.

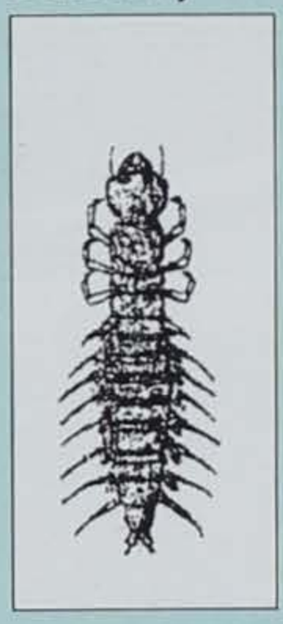
"It was better than I expected," she said. "I was surprised at how good it looks. We have a lot of feed lots in this county, (but) the recordings we found are real good." She plans to conduct similar testing three times a year, as suggested by the workshops.

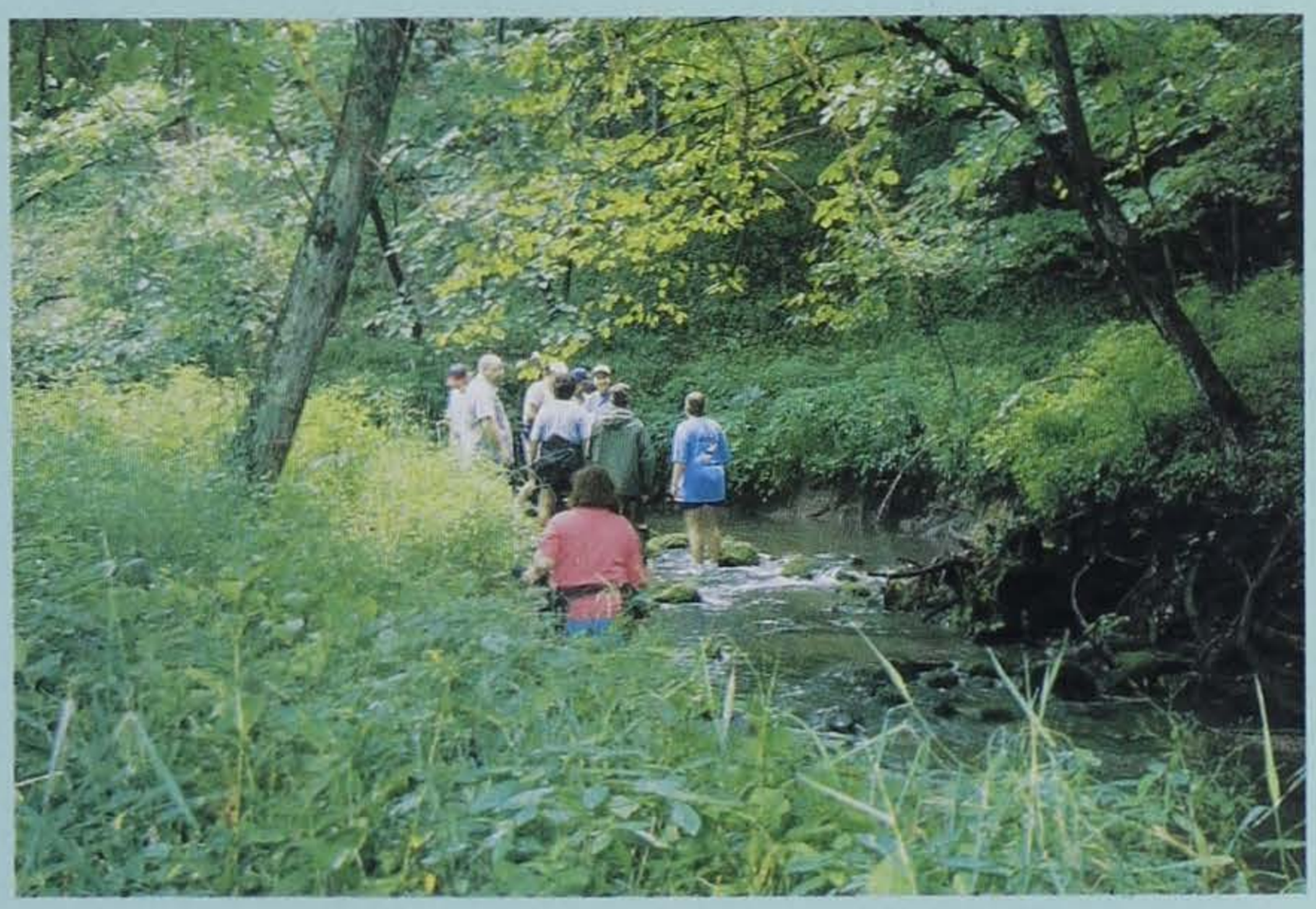
"If you test too often, you kill the environment," Forristall said. "You

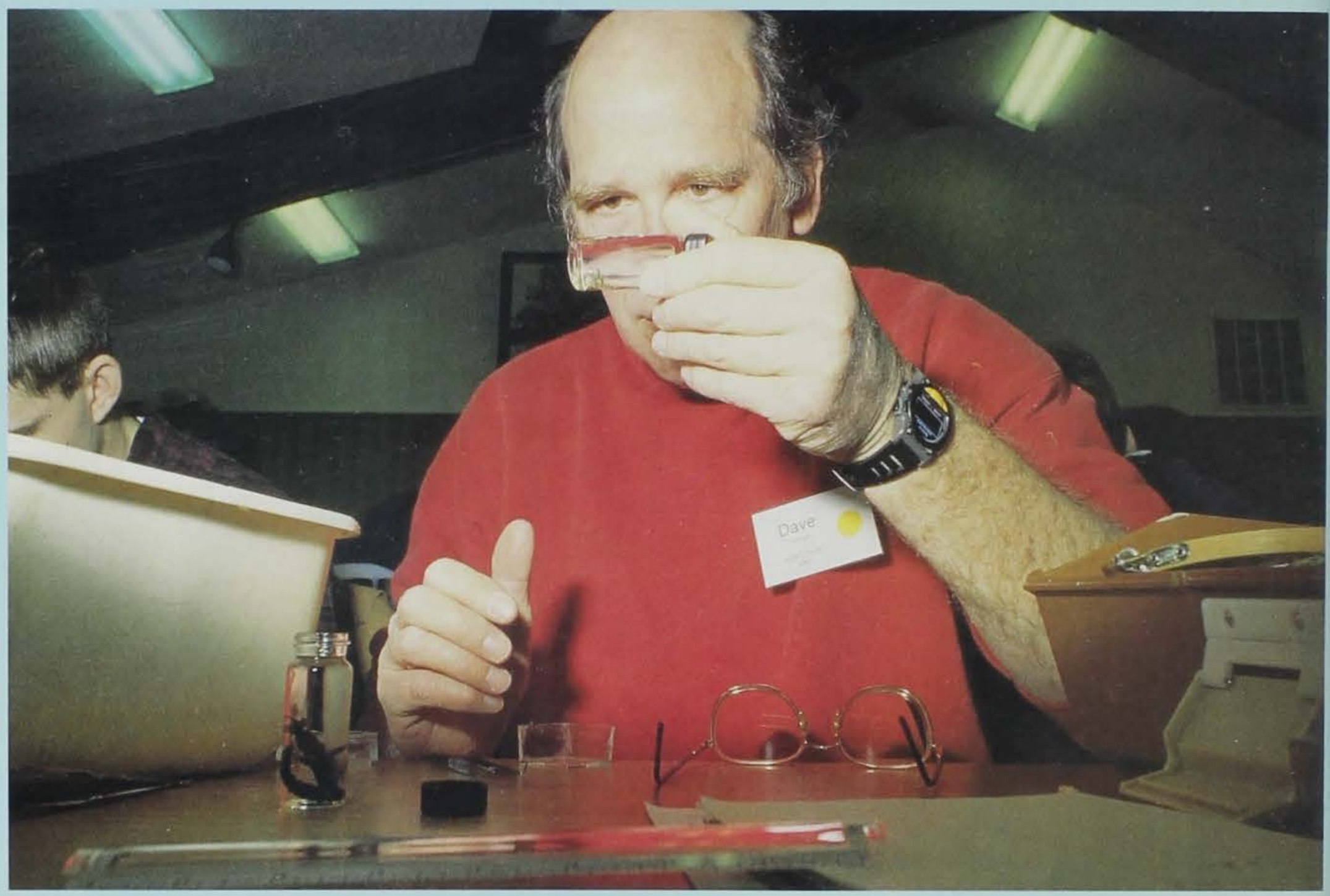


Session leaders teach all the skills necessary to test water quality.

Dobsonfly







don't want it disturbed more than three times a year."

Chemical and physical sampling is conducted once a month. A turbidity tube is used to measure the amount of sediment in the water, which indicates the clarity of the stream. Chemical testing also includes measuring the level of oxygen, nitrate, phosphate and pH in the water, as well as testing something as simple as water temperature.

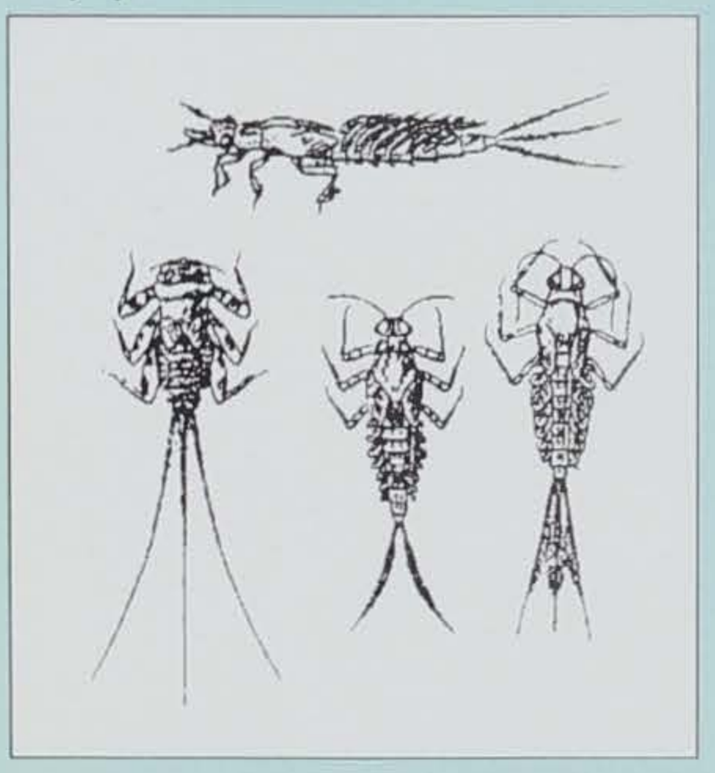
Stream habitat is monitored once a year since it changes slowly over time, according to Leopold. Assessing which animals inhabit a stream and the life patterns they follow is a longer process, and definitive results may not be available for a number of years.

Iowa's program is distinguished from others by its data reporting collection and reporting process. IOWATER volunteers enter data directly into a web database, accessible at www.iowater.net/database/online.asp, thus eliminating the need — and inconvenience — to store hard copy reports.

"We're the first state in the nation to be all online . . ." Leopold said. ". . . and it's working in our favor. We heard horror stories of warehouses full of paper . . . we decided early on all electronic information."

The information is accessible to anyone, but to enter data, a monitor must have a user name and a password. "This protects the quality of the

Mayfly



ata," Leopold said.

Despite attempts to guard the atabase against information taken by ntrained monitors, the credibility of ıe data collected has been ques- oned. Last year, the Iowa Legisla- ıre defined what constitutes "cred- ›le data," as well as how the data is sed for designating impaired waters ı the state. The definition allows for qualified volunteers" to collect data ›r the DNR; a qualified volunteer ıust not only complete the OWATER workshop, but must also work closely with the DNR to make ure that quality control and quality ssurance measures are followed and roperly documented."

The next question was what to do vith the data once it had been ollected, entered and determined redible.

"When you look at data, you take ı all of it, evaluate and make your ›est professional decision," Leopold aid. "We know what training these ›eople have had, what techniques hey use and we know they're not ›rofessionals. But they're out taking esponsibility for their own water ources."

IOWATER's mission pledges hat the program "focuses on solu- ions, not just documenting problems" ınd is "interested in results, not egulation." The program is not lesigned to exclusively pinpoint ıegative aspects of Iowa's water ources. Citizens volunteer because hey are concerned about the state's vater, and if a water source in their ommunity is polluted, data they ollect can alert the DNR to the ›roblem. For the most part, however, volunteers just want to be sure the vater is safe for their children and heir community.

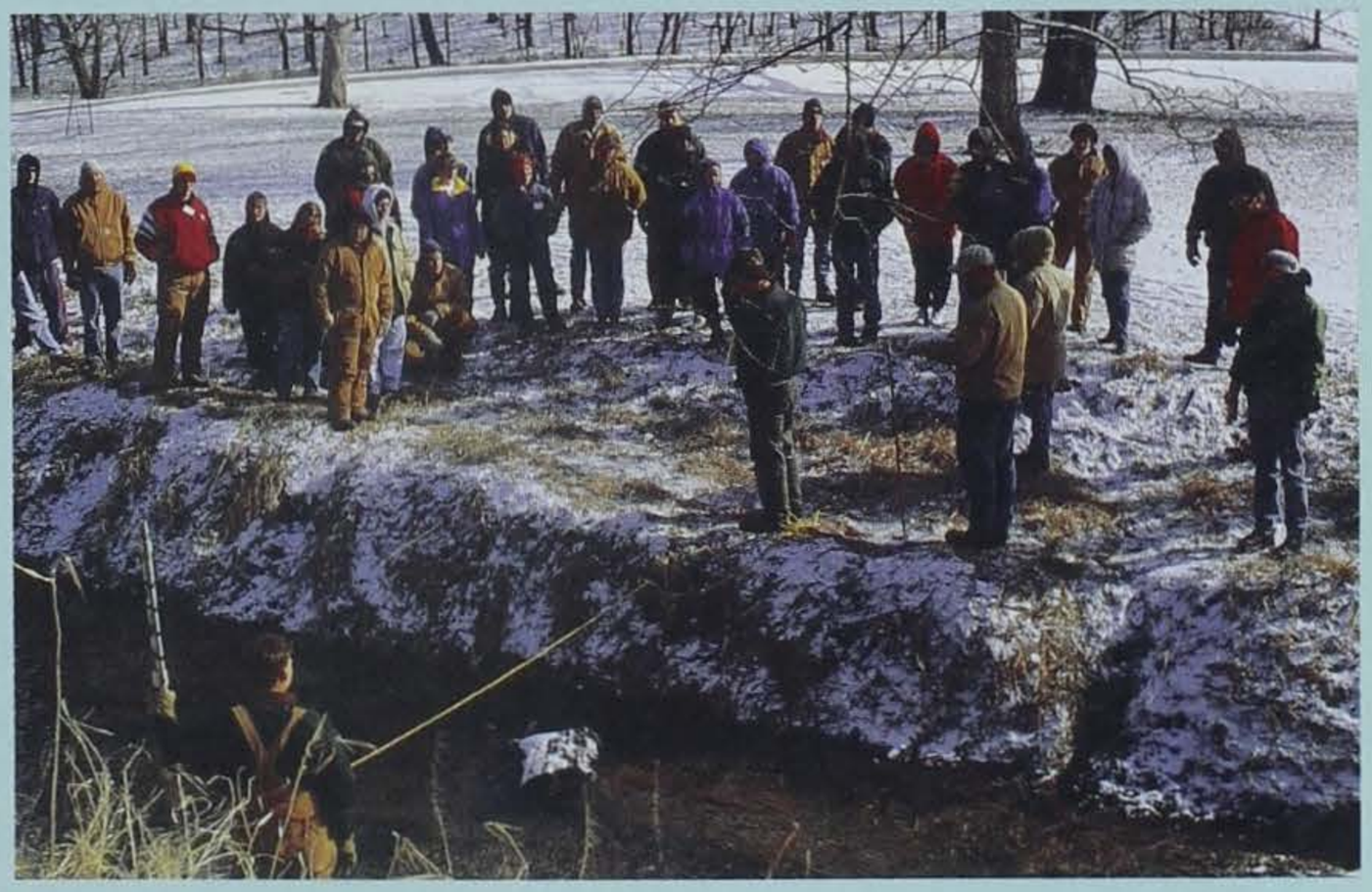
At this point, citizens are the primary users of the collected data. Agencies such as the DNR and the Environmental Protection Division (EPD) may use the data in the future, but the principal use now is to inform and aid the communities that gather the information.

"Citizens will be taking it to local settings where they need the information," Leopold said. He said that at the workshops, volunteers learn how to analyze their own statistics so the data will be useful when it is presented at city council meetings or to local environmental groups. "Government agencies will be looking at it, using it as a resource and as a good screening tool. We don't know how valuable it will be in the future."

Leopold said that the usefulness of the data gathered also depends on where in Iowa it has been collected. Monitoring conducted in southwest Iowa, for example, is probably more testing than anyone has ever done, and will be valuable for local use. Forristall said as far as she knew, the three registered sites in her name were the only three undergoing

Snail

Stream testing can be done in the winter as well as the summer.



volunteer testing in Pottawattamie County.

In the Davenport area, the IOWATER information is collected largely by schools in the Area Education Agency (AEA), and Lundy said a local web site is in the works to showcase the information for Scott County, as well as the history of the program in the county and where the funding came from. A $12,500 grant from the Riverboat Development Authority helped provide 20 area schools with IOWATER equipment, including nets, plastic containers and boots, and Lundy said they are looking to further expand the program and use of information.

"It's meant to excite teachers and students, to make it exciting and worthwhile," he said. "We've plugged [the training] into a local watershed group to form a baseline of knowledge of water quality in an area, to create a county-wide effort to assess quality."

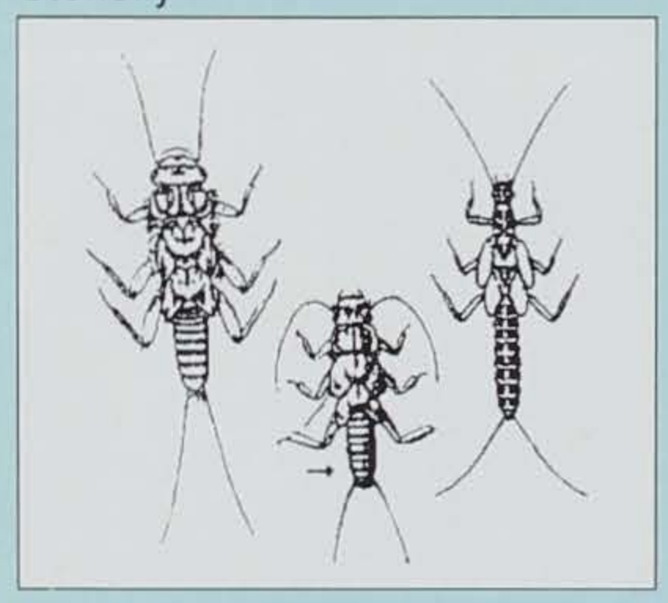
Larger agencies enter into the picture when the data shows evidence something is seriously wrong with the water source. "IOWATER can act as an early warning system," Leopold said, "if, for example, monitors' data has suggested in the past that pollution intolerant bugs live in a certain stream and all signs point to healthy water, and all of a sudden tests show that the good bugs have left and everything has slid downhill." Monitors may alert the EPD, which would run the full gamut of tests to determine if the change was due to a chemical spill, animal waste seeping into connecting groundwater or some other potentially dangerous situation.

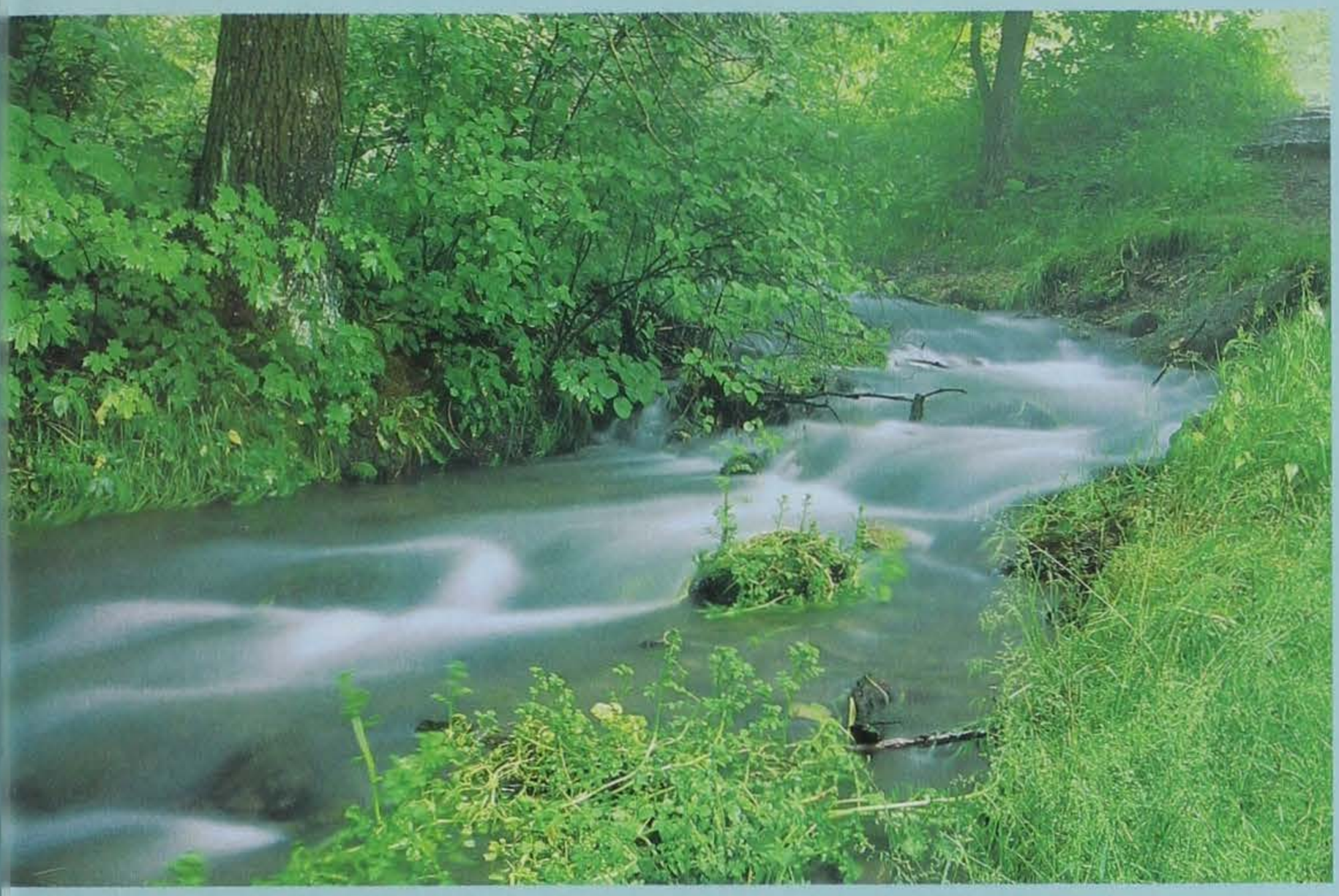
But as is the dogma of IOWATER, the key audience is the citizens — the environmentalists who collect data to lobby their local governments for precautions and treatments of water sources, the teachers who hand their students bug nets and attempt to instill an awareness of their surroundings, the parents who watch their children play in local streams and wonder if the streams are the cause of the rashes their kids sometimes pick up. The database is for their use, their benefit and their publication.

And also for their peace of mind. The information volunteers collect is often positive, serving to make Iowans more comfortable with their home environment.

"I was more concerned before

Stonefly





Monitoring water quality helps ensure Iowa's beautiful water resources have a future.

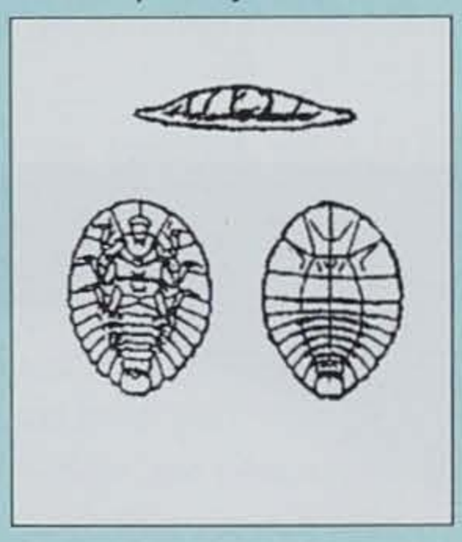
han after doing the testing," orristall said. "I found that the vater wasn't so bad . . . probably etter than 10 to 15 years ago. But hat's no reason to stop testing."

All Iowans have the opportunity o feel that same satisfaction with heir water resources, or to alert overnment organizations if the vater is not healthy. Interested itizens can contact Rich Leopold in Des Moines at 515-281-3252, or at chard.leopold@dnr.state.ia.us to eceive more information on how to ecome trained monitors.

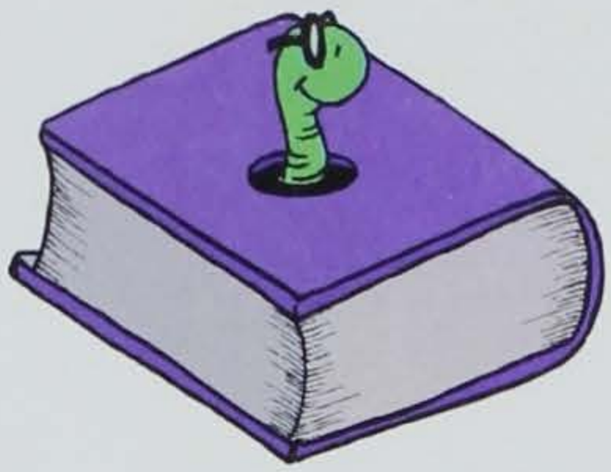
And just think, in addition to ssisting in the trek toward a leaner Iowa, you can impress your riends with the fact that you can se "benthic macroinvertebrate ey" in a sentence and actually have ne of your very own.

Jessica Tarbox is an intern with the department's information and education bureau. She is a senior at Drake University, majoring in journalism and history.

Water penny beetle



All macroinvertebrates pictured on this and preceding pages are examples of pollution intolerant "bugs." The presence of any of these in a stream is indicative of low pollution or a high quality environment.



Readin,' 'Ritin,' & Redworms

Classroom Critters with Composting Lessons to Teach

by Tammy Turner and Stacie R. Johnson

Teachers have incorporated animals in classroom studies for years. Whether it's Floppy the lop-eared rabbit, monarch caterpillars or Herbie Hamster, kids + animals = a winning combination. Classroom pets let students observe the animals up-close, study their behavior and learn about proper care and health.

Until recently, many teachers would have never thought of having a redworm as a classroom pet — much less nearly 1,000 of them. What some teachers are finding out, though, is they can be a tremendous teaching resource in the classroom and a valuable tool in waste reduction.

When the Bremer County Conservation Board visited classrooms throughout the area, it was discovered most students recognized the three Rs — reduce, reuse, recycle — and knew where and how to recycle in their community. However, few knew much about composting or how much food waste their family throws out each week.

According to DNR findings, an estimated 7.4 percent — about 331.5 million pounds— of the waste stream heading to Iowa landfills is food waste. That's a lot of banana peels, apple cores and moldy bread, not to mention wasted landfill space. To address this considerable slice of Iowa's waste pie, the conservation board developed traveling vermicomposting (worm-composting) bins full of wiggly, slimy, hard-working redworms.

We started with an average plastic container, added air holes and shredded paper for bedding, introduced hundreds of worms, added suitable food scraps and crossed our fingers. What began predominantly as an experiment evolved into a valuable

Naturalist Tammy Turner teaches a group of students about the process and benefits of vermicomposting.

arning opportunity, not only for the udents, but for their teachers and onservation board staff as well.

In the beginning, when teachers equested the program "Worms Eat ly Garbage!?! — Lessons in ermicomposting," what the students iscovered was amazing, both for them nd board staff. The hands-on program as designed to be fun and educa- onal, blending in biology, math and nvironmental awareness. Students ooked for cocoons, studied worm natomy, solved worm trivia problems nd surveyed the variety of food scraps the bin. Younger children were eated to a worm puppet show — arring Anna the baby redworm — ho illustrates the benefits of worms.

Following the program, the worms were left in the classroom for a week — sometimes even a month — giving students more time to study the concept of vermicomposting.

During each program, students were asked to document when and how much they fed the worms, observations they made, how many cocoons they found and how quickly the food "disappeared." The entries were then included in a Worm Bin Journal.

It was amazing how quickly some food scraps vanished. In one group, students placed watermelon in the bin on a Wednesday. When it was gone the following Monday, they accused the teacher of removing the rinds over the weekend, when in fact the worms actually worked that fast.

Since developing the bins in January 1999, more than 95 pounds of food scraps have been processed. For the most part, the food waste came from one person's house. Although that doesn't seem like much, it is put into perspective when students are asked to determine how much garbage would be diverted if every resident in Bremer County (population 22,800) composted or vermicomposted 25 pounds per year. The point is driven home when the students discover it's more than half a million pounds — or approximately 285 tons of garbage that could be turned into compost for gardens and

flowers instead of taking up space in the landfill.

Even though the worm bins aren't diverting tons of material from the landfill, the program shows food scraps aren't waste unless we let them be. They are valuable resources that can easily be transformed into a nutrient-rich compost.

Below: A group of students watch a vermicomposting puppet show starring Anna the baby redworm.

What They Are, What They Do

For having such tiny little brains, worms sure have a lot to teach us. These intriguing underground creatures are a fascinating educational opportunity for kids and adults alike. Although first reactions may be, "Worms, they are so gross," by the end of the presentation, a sea of hands may be reaching out begging "Can I hold one? Can I take one home?"

The number of annelid species in the world is staggering – approximately 9,000 in all – but the one best suited for domestication, indoor composting) is the redworm. Redworms differ from ordinary earthworms in many ways; most notably they are surface feeders rather than earth dwellers. They typically don't venture any deeper than the top 2 inches of the earth.

Redworms, as opposed to earthworms, can be easily kept inside a box. If kept warm and fed, they will not search out "greener pastures." A light should be kept on them for the first seven days, however, since they have a tendency to "run away" to their old home before they settle into their new one.

Given the amount of food redworms can process, they are an efficient way to turn waste into resource. Under ideal temperature, moisture and food availability conditions, each pound of worms can process between one-half and 1 pound of food per day. Broccoli, for instance, is one of the last foods worms will eat; worms have to be starving before they break down and eat it. Redworms typically prefer coffee grounds and filters, fruit and vegetables, bread, pasta, crushed egg shells, paper products and livestock manure. They do not actually eat the food they are given but eat bacteria growing on the food.

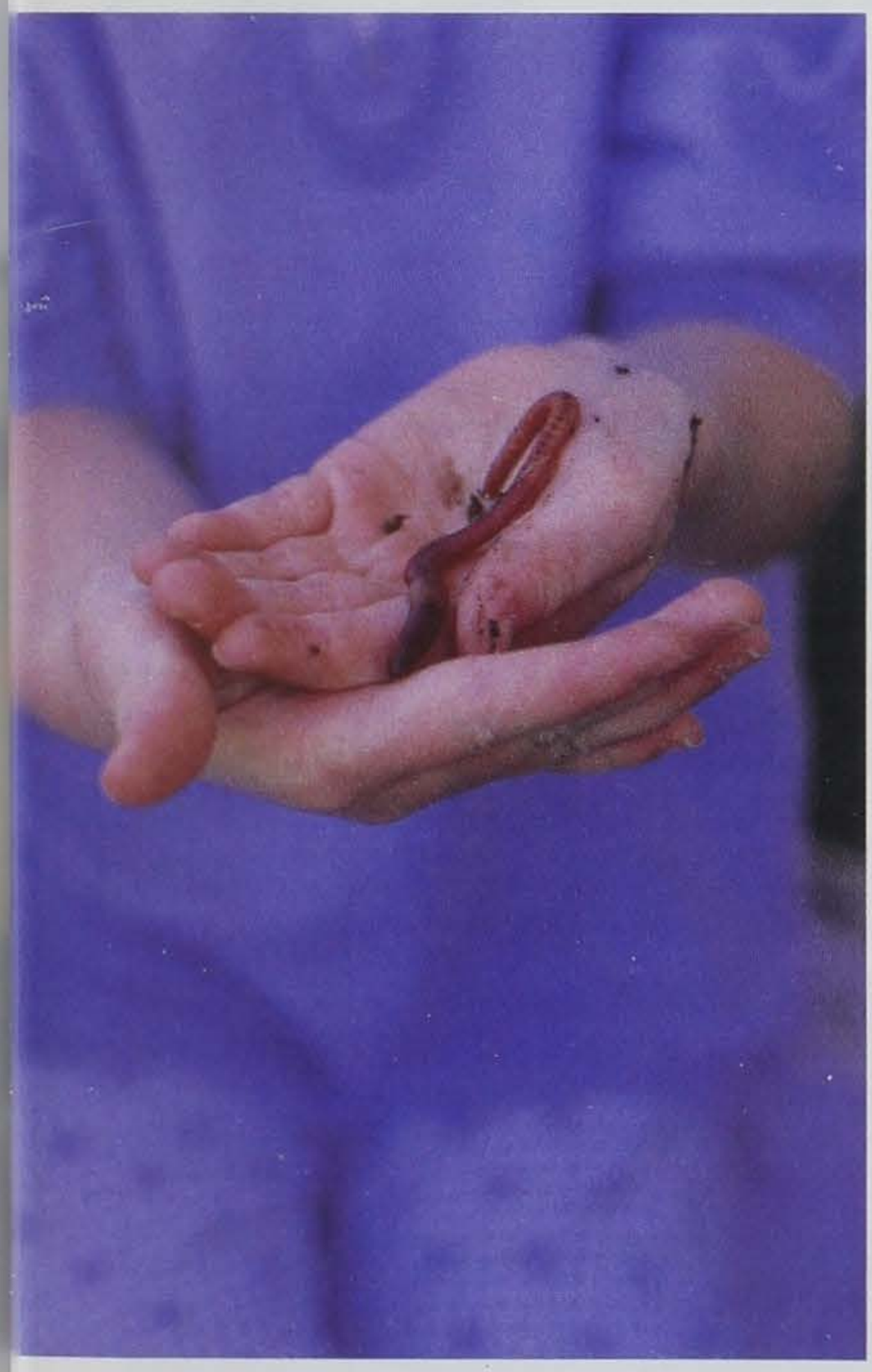
As with any composting process, what humans perceive as garbage can be "black gold" to the plant world. A worm bin can produce a usable product that is more like plant food than a soil builder, and do it in as little as 30 days.

Getting the compost is just as fun as making it and can be yet another lesson in the classroom. The compost is actually castings produced by the worms. They are fine granular mounds of beneficial microbial activity that nourish and protect plants. Harvesting the worm castings can be done in a variety of ways, but the pile and scrap method is fun for kids, and educational as well. Kids love getting their hands dirty and they can hunt for worm cocoons as well. It is an opportunity to let them loose and explore.

Harvesting may be the end of one vermicomposting experience but it can be the start of another. The use and experimentation with castings to grow plants can be just as exciting and educational. Composting with redworms provides a magical discovery of our earth's underground secrets and might be just the experience one needs to develop a lifelong respect and love for the wondrous workings of nature.

See the following page for information on how to start your own vermicomposting operation.

Tammy Turner is a part-time assistant naturalist for the Bremer County Conservation Board. Stacie Johnson is the owner and operator of Creative Composting Concepts and Organic Matters.



Vermicomposting in the classroom is a hands-on learning opportunity for students.

Do-it-yourself

Vermicomposting

Get the Worms

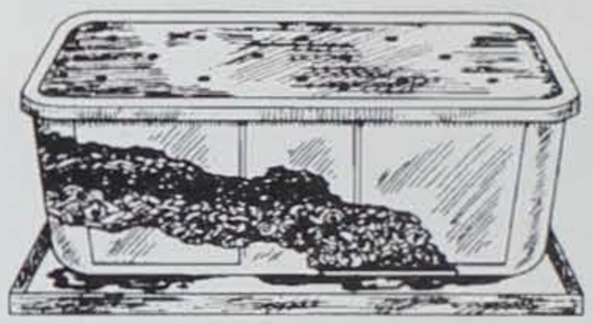
One pound of red worms (approximately 1,000) will cost up to $24 ($18/1000 at Organic Matters). Earth worms do not work in a vermicomposting application; they have different needs and do not reproduce as quickly as the red worm.

Build a Container

For every pound of food waste processed per week, one square foot of processing area is needed. An under-bed storage box is recommended as it is about the perfect depth (12"). For the bedding, coconut coir is recommended because it adds value to the end product (shredded newspaper dries out quickly). Coconut Coir can be purchased at Organic Matters or through gardening supply catalogs.

Set up the Environment

Red worms like the same temperature as humans do. The optimum working temperature is between 70 and 75 degrees. They also like any of the food we eat, too, only in a form that is unacceptable to us. You name it, they love it! In order for them to eat through the materials quickly, you should chop the food you provide into smaller pieces.



Keep it Going

Add the organic waste to your worm container at a regular schedule. Before you add more materials, make sure the worms have pretty much processed your previous addition in order to avoid a "sour" bed. Once your organic materials have been added be sure to cover the top in order to avoid other pests.

Harvest castings

Three ways to harvest castings:

1. Don't feed the worms for six months, let them die and harvest a bed full of nutrient-rich, worm-free castings.
2. Push all bedding materials (worms and all) to one side, add new bedding and start feeding on the new bedding side only. The worms begin to migrate over, and after six to eight weeks you should have a worm-free side to begin using.
3. Place a window screen over the top of your bedding, add a little bit of new bedding (not a lot) and begin feeding as usual. The worms will move through the screen to the new source of food. Do this for approximately six weeks, lift the screen, harvest the castings, and then begin over again.

Use the Castings

Uses include mixing water for a "compost tea"; incorporating them into household plants; mixing with potting soil and even using as a seed starter.

WHAT DO THEY EAT?

Banana peels, tomato peels, egg shells, tea bags, coffee grounds (filter and all), shredded paper, lettuce, carrot peels, pasta, rice, bread, cantaloup rinds, watermelon rinds, corn, apple cores, orange peels, grapefruit peels, grapes – almost everything!

For more information, contact Creative Composting Concepts and Organic Matters, 500 W. Main Street, Robins IA 52328, (319) 743-3147, soilcycle@aol.com

Spring 2001 Seedling Order Guide

Iowa DNR State Forest Nursery

Planting trees and shrubs helps create special wild places here in Iowa that you and future generations will treasure. Iowa's State Forest Nursery produces more than 4.5 million tree and shrub seedlings each year. These seedlings are sold to Iowans for conservation plantings including songbird and wildlife habitat, streamside buffers and reforestation. The following tree and shrub guide is a listing of all seedlings available for planting this year from the State Forest Nursery in Ames. When selecting your species, be sure to consider the purpose of the planting and space limitations. For small areas, consider a Songbird Packet. For larger areas, 30 species of trees and shrubs are available. Order soon for best selection.

Native Iowa Hardwoods

Silver Maple 50-80' Does best on slightly moist to well-drained sites, but is adaptable to most sites. Prefers full sun, tolerates some shade. Autumn color yellow.

Green Ash 50-60' Rapid grower. Does best on slightly moist to well-drained sites, but is generally adaptable to most sites. Requires full sun. Autumn color yellow.

White Ash 50-80' Rapid grower. Moist to well-drained sites, but is generally adaptable to most sites. Prefers full sun, but can adapt to some shade. Autumn color purplish.

Black Walnut 50-75' Does best on rich, deep, fertile, well-drained soils. Requires full sun.

Cottonwood 60-100' Prefers moist conditions, but is adaptable to most sites. Prefers full sun.

Hybrid Poplar 40-60' Indifferent to soil conditions. Prefers full sun. Non-native.

White Oak 50-80' Slightly moist to well-drained sites. Needs full sun. Autumn color purplish-red.

***Swamp White Oak** 50-80' Adaptable to most soils, yet grows best in wet, swampy, acidic soils. Requires full sun. Autumn color reddish-bronze.

***Bur Oak** 60-80' Adaptable to most soils. Requires full sun. Autumn color yellowish-brown to purplish.

***Pin Oak** 60-90' Best on moist or well-drained sites. Full sun, or some shade. Autumn color brilliant red.

***Red Oak** 60-75' Best on moist or well-drained sites. Full sun, or some shade. Autumn color red to reddish-brown.

***Mixed Oak** 50-80' Mixture of oaks including Red, White, Bur, Pin and Black in various sizes. Adaptable to most sites. Needs full sun.

Black Willow 60-100' Moist conditions near streambanks and lake shores. Requires full sun.

***limited availability this year**

To order your trees, or for more information on availability and pricing, call: 1-800-865-2477

Small Trees and Shrubs

Serviceberry 12-20' Produces showy white flowers in the very early spring followed by purple fruit. Prefers moist to well-drained soils. Adaptable to either sun or shade.

Gray Dogwood 10-15' Attractive shrub with creamy white flowers followed by white berries. Tolerates almost any location. Grows in moist or dry soils, in sun or shade. Native.

Redosier Dogwood 10-15' Attractive red stems with creamy white flowers followed by white berries. Tolerates almost any location, growing in moist or dry soils, in sun or shade. Native.

Siberian Crabapple 20-30' Clusters of white flowers with red/yellow fruit in the fall. Well-drained but not dry sites. Full sun to partial shade.

Ninebark 5-9' Flowers in May and June, followed by numerous small red pods. Moderately dry to moist sites. Full sun with partial shade. Native.

Wild Plum 10-15' Prefers rich, moist sites. Full sun, but is adaptable to slight shade. White fragrant flowers in May and June followed by yellow/purple fruit. Native.

Nanking Cherry 8-10' Pink to white flowers followed by scarlet fruit in June. Prefers rich, moist sites. Full sun, but adaptable to shade.

Chokeberry 20-30' Prefers rich, moist sites. Full sun, but adaptable to slight shade. Looks like black cherry, only smaller. Red fruit. Native.

Common Purple Lilac 8-15' Delicate, fragrant purple flowers in May. Prefers rich, well-drained sites and requires full sun.

Highbush Cranberry 8-12' Showy flat clusters of white flowers followed by bright red berries that tend to hold on throughout the winter. Prefers deep, moist, well-drained soils. Requires full sun to partial shade. Native.

Evergreens

***Eastern Red Cedar** 40-50' Adaptable to most sites that are moderately dry to moist. Requires full sun to partial shade. Tolerates poor, gravelly sites. Prefers airy sites. Very drought resistant. Dark blue berry-like fruit.

Norway Spruce 40-60' Hardy. Best on moist (potentially even swampy) to well-drained soils. Shade tolerant. Prefers cooler sites. Fastest growing spruce. Dense draping branches.

White Spruce 40-60' Hardy. Best in moist, well-drained, gravelly soils. Tolerates heat and considerable shade well. Medium growth rate.

Jack Pine 30-50' Hardy on dry, sandy soils. Adaptable to well-drained soils. Somewhat open and loose appearing. Not a good lumber tree.

Red Pine 50-80' Hardy, widely adaptable. Needs well-drained soil. Red bark. Full sun, but not tolerant of hot, dry winds--cool, protected sites are best.

***Eastern White Pine** 50-75' Grows well in rich, moist soil, but best in moist, sandy loams. Full sun to partial shade.

Scotch Pine 30-60' Good wildlife cover and Christmas trees. Only for short term plantings as tree may not survive beyond 20 years. Full sun.

ORDERING INFORMATION:

To order, call: 1-800-865-2477

Order soon for best selection. VISA and MasterCard are accepted.

Minimum order: 500 plants (except for Songbird Packets)

Prices:
Hardwoods and shrubs- $35 to $40 per 100 plants
Evergreens- $20 per 100 plants
Songbird Packets- $20 (3 oak, 6 dogwood, 6 lilac and 5 white spruce)

CHECK OUR HOMEPAGE FOR MORE INFORMATION AND SPECIES AVAILABILITY:
www.state.ia.us/forestry

2001 Stamp Designs

The 2001 Waterfowl Stamp design, "Snow Goose in Flight" was designed by Darren Maurer of Sioux City. The scene depicts a snow goose flying over an Iowa cornfield. Maurer captured first and second place in this year's Ducks Unlimited stamp contest, and some of his earlier prints have appeared in several national magazines. Artist editions of the print are available from Maurer's studio. Call (712) 277-3343 for more information.

2001 Waterfowl Stamp

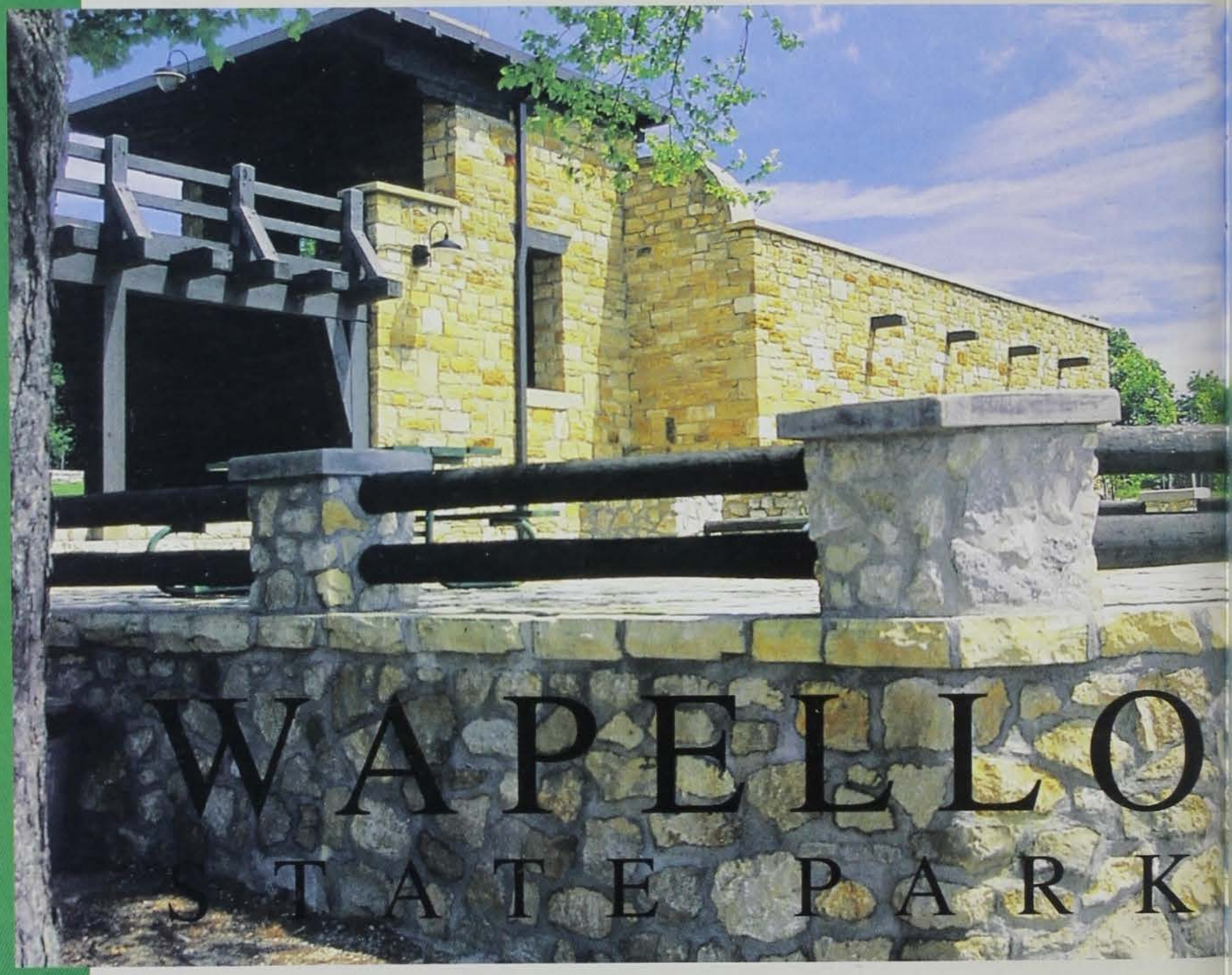
For the second consecutive year, Iowa wildlife artist Greg Bordignon of Robins was commissioned to design the Iowa Habitat Stamp print. "Winter Gathering" depicts a group of pheasants underneath an abandoned Farmall Model M tractor. Bordignon was named the Iowa Pheasants Forever Artist of the Year in 1995, 1996 and 1998. The image size is 6 1/2 by 11 inches and retails for $75. A limited edition of 500 prints are available from Wildlife Creations, 630 Grand Court, Robins, Iowa, 52328; (319) 743-0874.

2001 Habitat Stamp

The 2001 Trout Stamp design, "Rainbow Strike," was designed by Iowa industrial wildlife artist J.D. Speltz. The scene depicts a rainbow trout in a fall setting at Backbone State Park near Strawberry Point. Speltz is a nine-time state stamp winner and a two-time national award winner. The image size is 6 1/2 by 11 inches and retails for $39.95. The print is available from Speltz Studio of Wildlife, P.O Box 110, Armstrong, Iowa, 50514; (712) 868-3001.

2001 Trout Stamp

Parks Profile



Article by Ron Moore • Photos by Clay Smith

It is described as the "Okoboji of southeastern Iowa" and the "country club" of Iowa's state parks. Named to honor the memory of the famous Native American, Chief Wapello, Lake Wapello State Park was an Iowa Fish and Game Commission project providing the public with a place to fish.

Lake Wapello was born in 1932 when approximately 900 acres were purchased for the park. Work began in August that year. The 1,150-foot dam was built by the Paul Betz Construction Company of Sioux City at a cost of $97,000. To help defray expenses, residents in surrounding towns donated nearly $15,000 and volunteered 1,500 days of labor to clear trees and underbrush. In 1933, Company 773 of the Civilian Conservation Corps (CCC) and its 208-member crew was organized at Lake Wapello. Mostly, they monitored soil erosion, controlled lake bed construction, planted trees, built bridle paths and constructed a bath and beach house, open shelter, entrance portals, cabins, a

sewage disposal system and fish rearing ponds. The ponds were used for fish reproduction until the early 1970s when the fishery closed. The CCC was an integral part of the infrastructure of Lake Wapello and through the organization's teamwork, the park evolved into a scenic area.

The park was dedicated in July 1936. The Honorable Clyde L. Herring handled the acceptance and dedication of the lake, and Mrs. Henry Frankel dedicated Boone Point. Boone Point was dedicated in honor of the late Dr. W.C. Boone, chairman of the State Fish and Game Commission during the time the lake was built. Boone, a dentist from Ottumwa, was known for his sincere devotion to the cause of conservation. The plaque dedicated to Boone can be seen at the base of the flagpole at the beach area.

Throughout the years, approximately 1,160 additional acres have been purchased. The lake was renovated in 1991 due to sedimentation and the high populations of rough fish, mainly gizzard shad. The DNR's fisheries bureau led the renovation effort, including the placement of riprap along the shoreline, repairing a silt dam and constructing two more. They placed fish structure throughout the lake bed to enhance the overall fishery. Jetties were developed to accommodate shoreline anglers, and a handicap-accessible fishing pier was installed.

In 1997, another major renovation project took place. The sandstone and timber beach house, closed in the mid-1970s due to its rapid deterioration, underwent extensive renovation. Work focused on restoring the original style and design of the existing structure. The beach house contains a restroom and changing room for swimmers and sunbathers, and an open shelter with fireplaces on the balcony and at ground level.

The concession stand and restaurant, which offers a scenic view overlooking the lake, adjoin the beach house. On cool evenings it is not uncommon to see the crackling, red flames of wood burning in the fireplace.

Opposite page and above: The beach house underwent extensive renovation in 1997 and was restored with its original style and design in mind. The original sandstone and timber structure, built in the early 1930s, was closed in the mid 1970s due to extensive deterioration.

Parks Profile

These features make the restaurant a popular family gathering place.

Located below the restaurant are the bait shop and boathouse. They offer a variety of fishing tackle, bait and grocery items, as well as boat, canoe and paddle boat rentals. A pontoon boat may be available in the future.

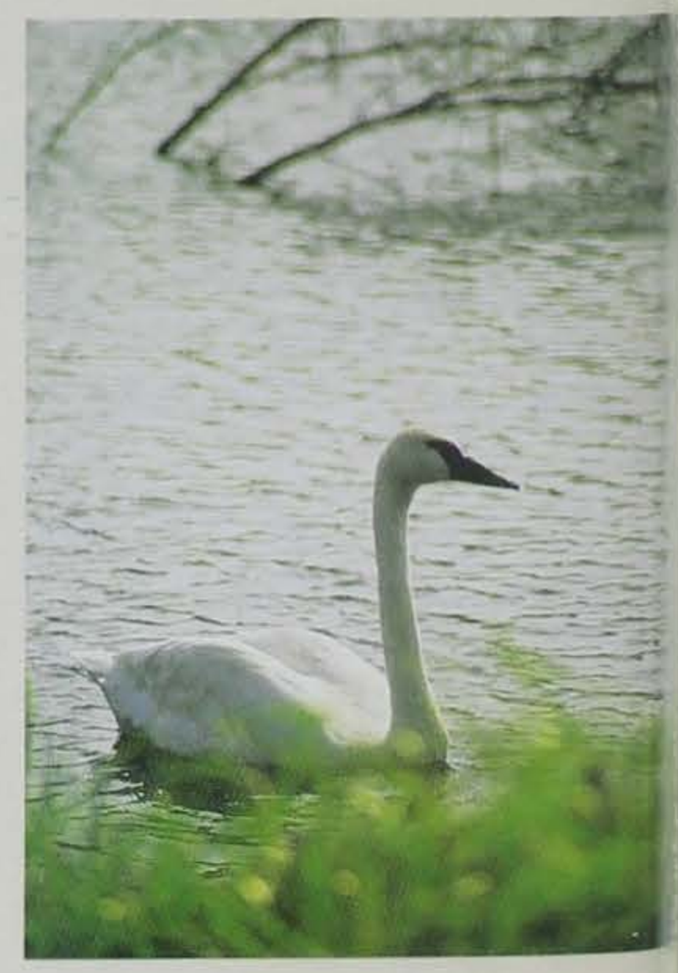
At one time, allowing private summer cottages around the lake was considered. However, the commission ruled against having private property located on land every citizen had the right to use. However, the park offers 14 family cabins available for rent. The cabins can accommodate four people comfortably and contain modern restrooms, showers and cooking facilities. Because of 70 years of wear, the cabins are scheduled for renovations this year.

The park also features an 82-site campground with a modern shower and restroom facility. A 7.1-mile scenic lakeshore trail offers premiere views of flora and fauna. There are several

UPPER LEFT: The restaurant is a popular family gathering place.

LEFT: A mother and son fish from a handicapped-accessible fishing pier.

RIGHT: Lake Wapello is the first state park in Iowa to participate in the trumpeter swan restoration program.



picnicking sites, including an open shelter that can be rented. The shelter is a popular spot for family reunions, weddings and other get-togethers. In fact, one of the picnic sites plays host to the annual Memorial Day Buckskinners Rendezvous Camp.

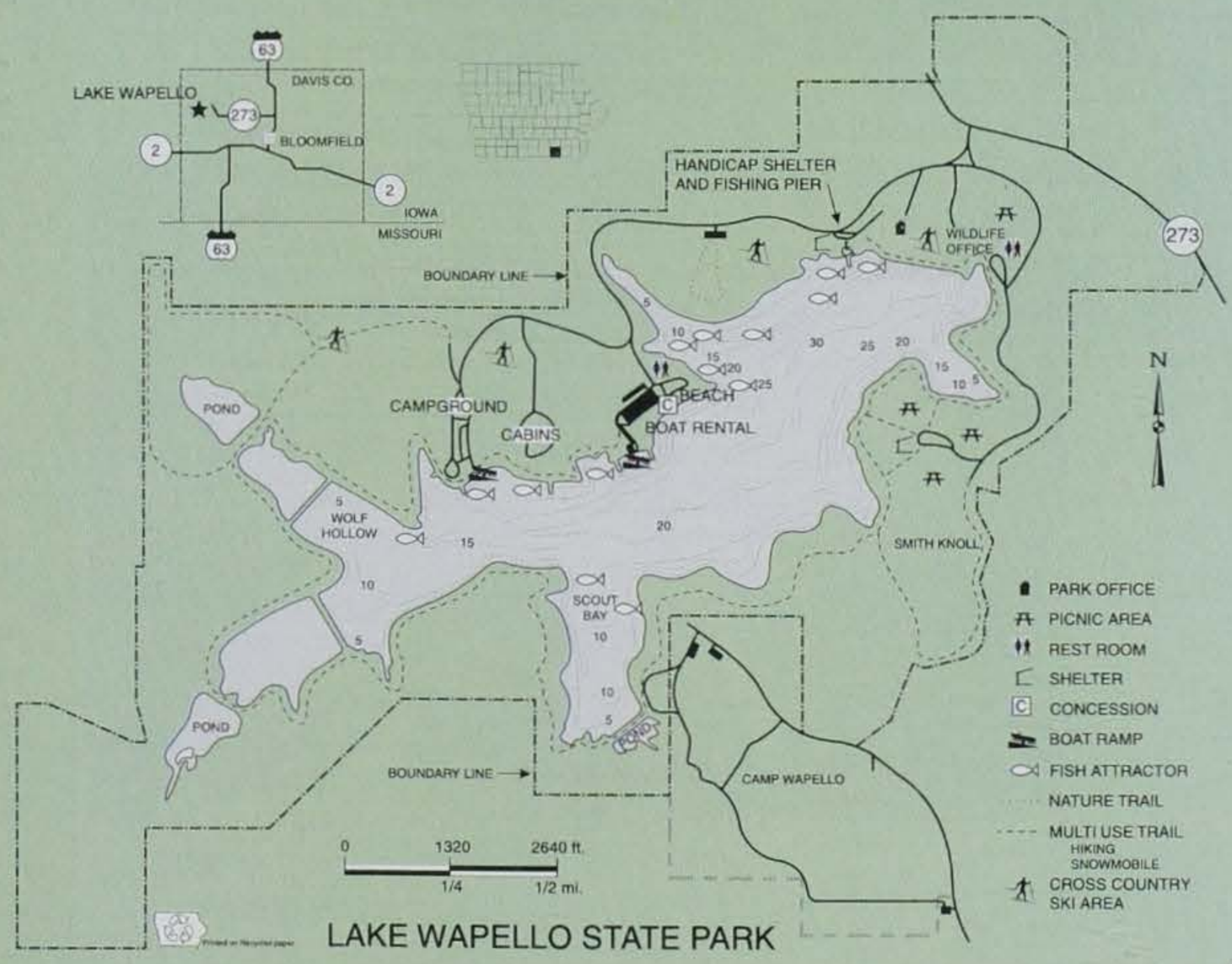
The newest addition to the park is a pair of trumpeter swans, which has successfully hatched and raised three cygnets. They are located in a fenced fish-rearing pond by the office. Lake Wapello is the first state park in Iowa to participate in the trumpeter swan restoration program.

Lake Wapello offers something for everyone, whether it's fishing for monster bass and bluegill, having a quiet leisurely picnic, hiking along the lakeshore, taking a swim at the beach, stopping for a rustic retreat in a cabin or having a fabulous meal in the restaurant. It is truly a forgotten paradise.

Ron Moore is the manager of Wapello State Park.

LAKE WAPELLO AT A GLANCE

GENERAL INFORMATION: Approximately 1,160 acres; wooded hillsides, shaded picnic areas, lake.
LOCATION: Six miles west of Drakesville on highway 273.
FISHING: 289-acre artificial lake containing bass (catch-and-release only), crappies, catfish and bluegills; boat ramps; fishing jetty; handicap-accessible fishing pier.
CAMPING: Modern; 82 sites (38 with electric); modern shower facilities; playground; trailer dump station.
TRAILS: 7.1-mile multi-use trail.
CABIN RENTAL: 14 family cabins accommodating up to four people each; contains modern restroom, shower and cooking facilities. Renovations planned in 2001.
PICNICKING: Several shady and grassy picnic areas, including an open picnic shelter available for rent.
SWIMMING: Beach and newly remodeled beach house with restroom/changing room, open shelter area.
BOATING: Boats with unlimited motor size operated and no wake speed allowed.
CONCESSIONS: Seasonal restaurant, concession stand, bait shop and boat rental.
FUN FACTS: Largest beach house building in the state park system and the only park with a restaurant. First Iowa state park to participate in the trumpeter swan restoration program.
CONTACT: 515-722-3371.



LAKE WAPELLO STATE PARK

CONSERVATION 101

Getting The Most Out Of Your Backyard Feeder

Editor's Note: *This is the first of a two-part series about bird feeding and identification. This issue addresses feeding tips and how to attract different birds. In the March/April issue, find out how to indentify birds and their gender.*

by A. Jay Winter

Roger Hill

Corn and millet will attract unwanted species such as squirrels, starlings and sparrows.

Bird watching and feeding have grown in popularity over the past few years. In fact, it is one of the fastest growing hobbies in the nation.

Bird watching and feeding can be enjoyed at various levels. To some people, it can be as simple as watching birds from a kitchen window feeding at a homemade feeder. To others it's a passion, with multiple feeders, expensive binoculars and vacations focused on finding new birds.

Whatever the motivation, bird watching can be a true pleasure. Following a few simple guidelines will make the bird watching experience more enjoyable and successful.

The first thing to consider is the type of feed to "serve." Many people buy bird seed made from a mix of millet, sunflowers and cracked corn. Keep in mind, though, the millet and corn in these mixes tend to attract sparrows and starlings, considered pests at most bird feeders. Bread is even worse.

When selecting bird seed, realize birds are a lot like humans. They like certain types of food better than others. Sunflower and Niger seed are more attractive to most song birds, as is suet (fat) during the cold months.

Ron Johnson

Some birds like to eat at suspended feeders while others prefer foraging on the ground. By providing food at both levels, the variety of birds visiting the feeders can be greatly increased.

The type of feeder is also important. Some birds like to eat at suspended feeders, while others prefer foraging on the ground. By providing food at both levels, the variety of birds visiting the feeders can be greatly increased.

Food isn't the only factor to consider when designing a backyard sanctuary. Bird baths are an important component to include. Properly maintained, they provide water for drinking and bathing all year long. Bird baths should be cleaned regularly, and in the winter, they need to be kept thawed. A small heater will do. Birds will also use small decorative ponds if constructed properly.

Birds also require cover to rest

Ron Johnson

Birds are a lot like people — they prefer certain types of food over others. Attracting a greater variety of birds requires offering different foods, like sunflower seeds...

Ron Johnson

... Niger seed...

and perch on before they come to a feeder. Planting trees, shrubs and other plants will provide the needed cover. Bringing in cover, such as a discarded Christmas tree or a brush pile made of branches, will also work. Providing cover close to the feeder will greatly increase the number and diversity of visiting birds.

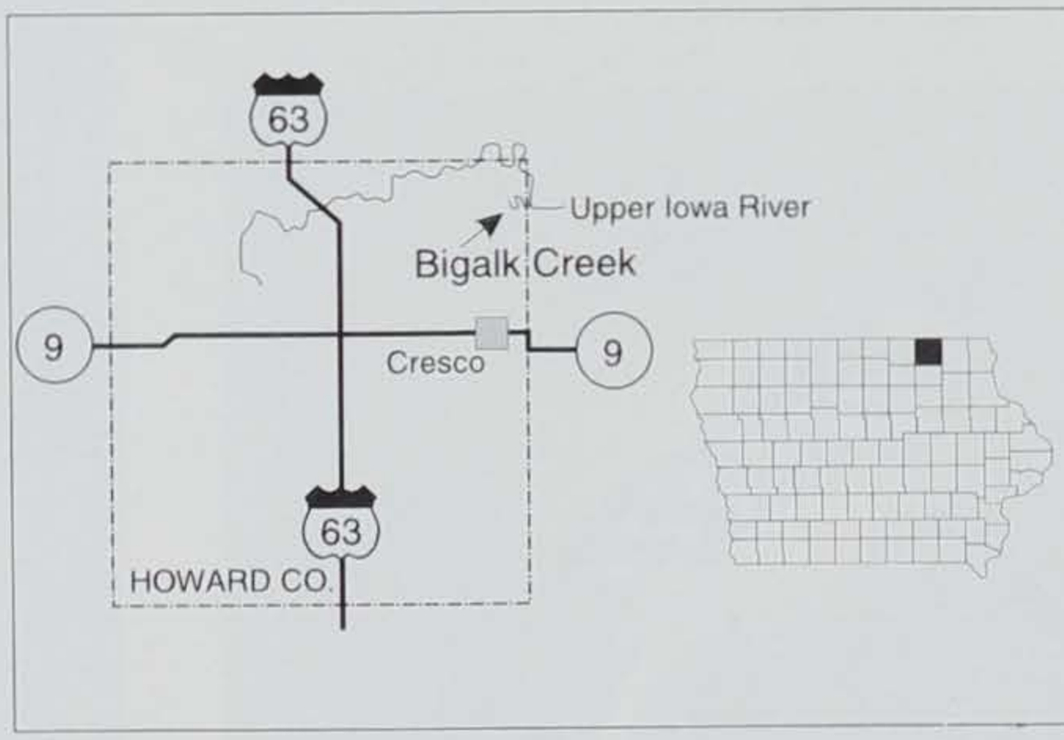
Whatever the motivations, enjoy the birds and take time to learn more about them.

Ron Johnson

... and suet during the cold winter months.

A. Jay Winter is a training officer for the DNR at the Springbrook Education Center.

Bigalk Creek Grabs National Spotlight



One of Iowa's premier watershed projects is now garnering national recognition.

The Bigalk Creek Watershed Project in Howard County is one of 30 watershed projects from across the United States that has been named as a "success story" under the federal Clean Water Action Plan. In all, only 24 of the 50 states had a watershed named to the exclusive list.

President Clinton announced the Clean Water Action Plan in February 1998, an effort designed by nine federal agencies to improve water quality nationwide. By addressing water quality problems on a watershed basis and coordinating both existing programs and new action plan initiatives, the federal government hoped to provide improved support for local watershed restoration efforts within the context of existing laws.

In naming Bigalk Creek as one of its success stories, the Clean Water Action Plan coalition noted "Although many restoration efforts have just begun, some projects have already produced striking environmental results... A variety of restoration efforts in Bigalk Creek, Iowa has caused rainbow trout populations to increase six-fold since 1992 . . ."

The Bigalk Creek Water Quality Project has surpassed many of its original goals. Sediment delivered to the stream has been reduced by 50

ercent. The creek's annual sediment oad from erosion has deceased by ,000 tons — a 60 percent reduction. ivestock manure reaching the tream has been reduced by 50 ercent. These reductions have lowed algal growth and brought bout a noticeable improvement in oth water quality and aquatic habitat.

The watershed project, which artnered local landowners with a umber of governmental agencies, lso resulted in water quality mprovements significant enough to upport natural reproduction of ainbow trout. Bigalk Creek is only he third stream in Iowa where this ccomplishment has been ocumented, and it has also been /here the number of naturally eproduced rainbow trout is most ignificant.

"There's a reason the Bigalk 'reek project is getting national ttention and that's because it eserves it," said Patty Judge, Iowa's ecretary of Agriculture.

"Bigalk Creek is an outstanding xample of what can be accomplished /hen people with a variety of ifferent interests can unite behind a ommon goal, and that common goal /as improving the water quality," aid Judge.

The success at Bigalk Creek hows significant improvements in /ater quality can be made by /orking with private landowners. "It s not necessary to purchase land and ake it out of agricultural production to chieve water quality goals," said Ubbo Agena, nonpoint pollution rogram coordinator for the DNR.

"Many of our projects are eferred to as 'demonstration rojects' and are designed to serve as xamples for other watershed rojects in the state. This project has done an excellent job of not only demonstrating various best management practices to improve water quality, but also has been a fine example of what can be done through public-private partnerships and how successful these efforts can ultimately be," Agena said.

Restoration activities in the Bigalk Creek watershed receive financial support from the federal government and the State of Iowa. Local leadership and administration of the Bigalk Creek Water Quality Project is provided by the Howard County Soil and Water Conservation District. Partners in state government include the Department of Natural Resources, Department of Agriculture and Land Stewardship and Iowa State University Cooperative Extension Service. Federal partners include the EPA, USDA Farm Services Agency and USDA Natural Resources Conservation Service.

"The voluntary efforts of producers in the watershed also show water quality can be improved without heavy governmental regulations," said Agena.

"We hope other areas of the state take notice of what was accomplished at Bigalk Creek and how. The more we get done to improve water quality on a voluntary basis, the smaller the need for more regulations down the road," Agena said.

Information on the Bigalk Creek project and other watershed success stories can be found on the Internet at: www.cleanwater.gov/success/.

For more information, contact Kevin Baskins at (515) 281-8395 or Ubbo Agena at (515) 281-6402.

Editor's Note: At press time, Bigalk Creek Water Quality Project had just received a 2000 Governor's Iowa Environmental Excellence Award.

The Bigalk Creek project resulted in water quality improvements significant enough to support natural reproduction of rainbow trout.

Conservation Update

PLAY IT SAFE ON THE ICE

Unseasonably cold weather in early winter gave ice anglers an early jump on the season. Although most of the state has good ice conditions, anglers still need to use caution and not take any unnecessary risks.

Sonny Satre, recreational safety coordinator for the DNR, said ice conditions are constantly changing and safety should be part of every fishing trip.

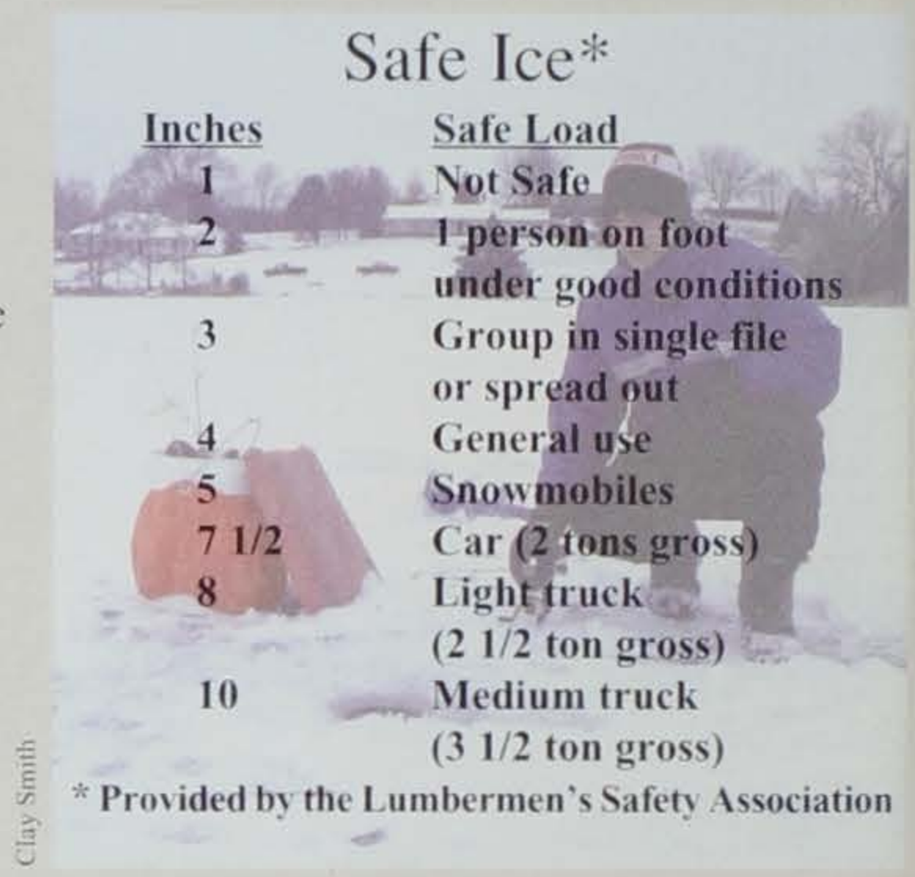
"Anglers need to use good judgment. I wouldn't take any chances that's for sure," he said. "I like 4 to 5 inches of good ice before I head out."

Clear blue ice is the safest, and clear river ice is 15 percent weaker than clear lake ice. "Stay away from black ice, snow-covered ice and off-colored ice."

Snow can insulate the ice and not allow it to get thicker. Satre said it is important to remember ice thickness is not uniform across the lake.

Two items that should always be included on ice fishing trips are a life jacket and about 50 feet of rope.

"Anglers should never go out alone," he said. "Let someone know where you are going and when you will return."



Clay Smith

Safe Ice*

Inches	Safe Load
1	Not Safe
2	1 person on foot under good conditions
3	Group in single file or spread out
4	General use
5	Snowmobiles
7 1/2	Car (2 tons gross)
8	Light truck (2 1/2 ton gross)
10	Medium truck (3 1/2 ton gross)

*** Provided by the Lumbermen's Safety Association**

Ice Shacks Must Be Identified, Removed By Feb. 20

With ice fishing well under way, anglers need to be aware of a few guidelines before venturing out onto state-managed waters.

Ice fishing shelters left unattended on state land or waters must have the owner's name, street address and city in 4-inch or larger block letters and numbers, displayed on all sides (in a color contrasting to their background). Reflectors must be attached to all sides of any shelter left on the ice after sundown. Ice shelters cannot be locked while in use.

Also, all ice fishing shelters must be removed from the ice by Feb. 20 or ice melt, whichever comes first, unless the deadline is extended.

2001 Ice Fishing Clinics

COUNTY	DATE	LOCATION	TELEPHONE
Poweshiek	1-13-01	Diamond Lake, Montezuma	515/623-3191
Boone	1-13-01	Don Williams Lake, Ogden	515/795-2809
Boone	1-20-01	Don Williams Lake, Ogden	515/795-2809
Hancock	1-20-01	Crystal Lake, Crystal	641/923-2720
Pottawattamie	1-20-01	Arrowhead Lake, Neola	712/328-5638
Davis	1-21-01	McGowen Recreation and Wildlife Area, Bloomfield	641/664-2572
Sioux	1-27-01	Winterfield Boating and Fishing, Rock Valley	712/552-3057
Wright	2-03-01	Lake Cornelia, Clarion	515/532-3185
Hancock	2-24-01	Indian Lake, Goodell	641/923-2720

Hunting, Fishing Licenses Take On New Look

Iowa hunters and anglers will notice substantial changes in their hunting and fishing licenses.

This year all licenses, including most deer and turkey tags, will be sold through the state's new Electronic Licensing System for Iowa (ELSI). The changes went into effect with the beginning of 2001 license sales, Dec. 15, 2000.

Regular licenses resemble typical credit card receipts; they are, however, unique in that green stripes border the outside edges and the Iowa state seal is imprinted on each license.

Resident license buyers will need to provide an Iowa driver's license, non-operator's identification card or social security number to purchase a license. The buyer's DNR number, printed on the top of each license, can also be used on subsequent purchases.

Most deer and turkey tags will also be sold through ELSI. All licenses unrestricted by quotas will be issued at the point of purchase. For those restricted by a quota, hunters apply through the ELSI terminal and pay the license fee. Once a drawing is completed, licenses or refunds (to unsuccessful applicants) will be mailed to the customer.

Licenses can be purchased at any one of the approximately 800 license agents statewide.

2001 LICENSE
IOWA DEPARTMENT OF NATURAL RESOURCES

DNR #: 999912363
ANN TEST
1324 50TH STREET
DES MOINES IA 50319

DATE OF BIRTH: 08/26/1956 GENDER F
HEIGHT: 5'06" WEIGHT: 120LBS
HUNTER SAFETY" YES EYES: BLUE

2001 LICENSE
EXP. 01-10-2002 (UNLESS NOTED ELSEWHERE)

002 RESIDENT HUNTING $13.00
093 HABITAT FEE $ 6.00

TOTAL: $19.00

SIGNATURE:_____
SEE INFO. ON BACK - (no refunds)

TRAN #: 000000097 11/16/2000 10:14
AGENT: 099902 TERMINAL: 3900016

Electronic hunting license

Turkey Licenses Sold Electronically, Harvest Reporting Now Required

Turkey hunting licenses have changed significantly this year with the advent of the Electronic Licensing System for Iowa (ELSI).

Turkey hunters will receive two documents for each license purchased — a turkey hunting license and a combination transportation tag and harvest report card. The license looks almost identical to a regular electronic hunting or fishing license. The tag looks similar to past years, except the top half is the transportation tag and the bottom half is the harvest report card.

The date of harvest must be written on the transportation tag, and the tag placed on the turkey. The harvest report card must be completed and returned to any license agent within 48 hours of harvesting the bird. A verification tag will be issued by the agent, which must be affixed to the animal until it is processed for consumption.

Harvest reporting is new this year and will provide reliable data to better manage Iowa's turkey population. Tagging and reporting instructions are also printed on each tag and in the *2001 Spring Turkey Hunting Regulations*.

Turkey hunters can apply for a tag for any of the three state forests through Jan. 28. All other turkey licenses, and any remaining state forest licenses, will be sold beginning Feb. 10.

Iowa Dept of Natural Resources
Transportation Tag
DNR# 999912363
DOB 08/26/1956
ANN TEST
1324 50th STREET DES MOINES IA 50319

GB

Enter Date of Kill ____/____/____
Spring Turkey G/B Z4,S4 413 $23.00
Season 05/02/2001--05/20/2001

Terminal Number 3900016 Date Time of Issue 11/16/2000 10:14:00
Transaction Number 000000097 Agent 099902

Iowa Dept of Natural Resources--Harvest Report Card

Spring Turkey G/B Z4,S4 413 $23.00
DNR# 999912363 DOB 08/26/1956
ANN TEST
1324 50th STREET DES MOINES IA 50319
Signature_____

Date of Kill ____/____/____
County# _____ or County Name (First 6 Characters)
Public or Private Land ____Public ____Private
Was Turkey (mark one): ____Gobbler (spur>1/2 inch) ____Jake (spur<1/2 inch)
____Bearded Hen

Transaction Number 000000097 Agent 099902

2001 spring turkey transportation tag and harvest report card

Conservation Update

Clay Smith

Dressing properly, including wearing several layers of clothes, gloves, a stocking hat and water-resistant footwear, will help prevent hypothermia.

Protecting Against Hypothermia

Cold weather does not deter many people from enjoying their favorite winter sports, but they need to prepare for the elements.

Hypothermia is commonly associated with very cold weather, but it can occur at cool temperatures above 40 degrees. The most important thing is to dress properly, including wearing several loose-fitting layers of clothes, a hat, a scarf or knit mask to cover the face and mouth, mittens and water-resistant coat and shoes.

It is important to pay attention to your body, said Marty Eby, DNR recreational safety officer. Shivering and bluish-gray skin color are early signs of hypothermia. Other warning signs include confusion, memory loss, drowsiness, exhaustion, fumbling hands and slurred speech.

If medical care is not immediately available, get the person into a warm room or shelter. Remove any wet clothing and dry them off. Warm the center of the body first — chest, neck, head and groin — with loose dry layers of blankets, clothing, towels or sheets.

If ice anglers or hunters fall into the water, Eby said it is important for them to get out of the water as fast as possible and keep their clothes on.

"Wet clothes trap air bubbles and that traps heat," Eby said. "Once out of the water, get to a warm area and take off the wet clothes and dry off."

Outdoor enthusiasts should take along an emergency kit including a warm blanket, food such as granola bars and a bottle of water.

Agreement Reached On Tire Pile Clean-up

State and local officials have come to agreement with a property owner in Fort Dodge, paving the way for the removal of more than two million waste tires stockpiled at the site of a former tire collection facility.

In December, Don Grell, owner of the site and former operator of Tire Chop, agreed to allow the Iowa DNR full access to his property so work could begin on removing tires. The tires cover almost 12 acres on an industrial site on the southwest side of the city. Negotiations for the cleanup began this fall, when state and local officials worked with Grell to exterminate mosquitoes breeding within the stockpile.

For more than four years the site had been in noncompliance with provisions of a tire processing permit originally issued by the DNR, and a resolution was needed to correct the environmental and public health risk that the tires posed.

Grell will be allowed to continue removing or selling any salvageable tires he may have while the DNR proceeds with hiring a contractor for the majority of the cleanup work.

"Mr. Grell has made a decision that's good for everyone," said Mel Pins, an environmental specialist with the DNR. "We want to thank him for looking to the best interest of the Fort Dodge community."

Volunteering Today For A Better Iowa Tomorrow

HUSBAND AND WIFE VOLUNTEER TEAM MAKING A DIFFERENCE AT WILSON ISLAND RECREATION AREA

Chances are, the first people campers encounter at Wilson Island Recreation Area are Moe and Ina Rines. They can point campers to the perfect campsite, guide anglers to the best fishing holes or provide a history of the 577-acre park, dense with cottonwood stands that was once a Missouri River island sandbar.

They greet campers, answer any questions, make change out of their own money and hand out Fish Iowa! buttons to the kids. The bathrooms are immaculate, thanks to the Rineses who clean them twice and sometimes three times a day. Sometimes they can be found on the trails with their black lab, clearing away downed trees on the path or getting rid of invasive plants such as thistles. And of course, the campground is generally free of litter.

For the last 15 years or so, Moe and Ina Rines traveled the short distance from Kennard, Neb., to the Wilson Island Recreation Area. After Moe retired, the Nebraska couple decided to make the campground their permanent summer residence, and spent the last camping season as Wilson Island volunteer campground hosts.

As campground hosts, the Rineses work with the Wilson Island summer staff to ensure campers enjoy themselves. They are considered valuable volunteer employees.

The entire staff agree Wilson Island Recreation Area is a better resource today, thanks to the dedication of campground hosts Moe and Ina Rines.

For more information about volunteer hosting opportunities across the state, call 1-800-367-1025, or e-mail volunteer@dnr.state.ia.us. Additional volunteer opportunities are posted on the DNR's web page at www.state.ia.us/dnr.

Upcoming NRC and EPC Meetings

The dates and locations have been set for the following meetings of the Natural Resource Commission and Environmental Protection Commission of the Iowa Department of Natural Resources.

Agendas for these meetings are set approximately 10 days prior to the scheduled meeting date. For additional information, contact the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.

Natural Resource Commission:

— January
No Meeting
— February 8
Des Moines
— March 8
Boone Research Station
— April
No Meeting
— May 10
Albia

Environmental Protection Commission:

— January 16
Des Moines
— February 19
Des Moines
— March 19
Des Moines
— April 16
Des Moines
— May 21
Des Moines

Warden's Diary

"Thanks"

by Chuck Humeston

Not too long ago I met someone who asked, "Aren't you the guy who writes that article in the magazine?"

I gave my standard reply, "That depends, do you like it?"

"Well, yes I do," he said.

"In that case, yes, I'm the guy."

Then he asked, "How long have you been writing that, anyway?"

Momentarily stumped, I guessed six or seven years. The more I thought about it, the more I wondered just how long I had been writing Warden's Diary. I decided to ask two of my most faithful readers — my parents. So on my last trip to southern Iowa, I looked through their stack of saved Iowa Conservationists. I dug to the bottom and looked at the issue date. July 1989! I've been writing this for 11 years? How time flies.

I started writing this column as a fill-in for Jerry Hoilien, who had taken over the column from longtime writer Rex Emerson. I became the full-time columnist when Hoilien retired. It was very humbling, as both officers had labored to make this column almost legendary.

Surveys have revealed this is a highly read section of the magazine. I've always said that's not because of me. I truly believe any officer could write this, and people would still read it because they are interested in what game wardens do.

I've said from the beginning this isn't a column about hunting and fishing stories. This column has a singular purpose. I want readers to better know the men and women I work with, both as professionals and as human beings. If someone reads this, closes the cover and thinks, "So that's what it's like to be a conservation officer," then I've been successful.

I've been fortunate to serve as an Iowa conservation officer. I've also been fortunate to indulge my passion for writing. After graduating from the University of Iowa with a degree in journalism, I had dreams of being a newspaper reporter. But life has its twists and turns, and here I am.

Writing this column is a responsibility I take seriously. Every time I sit down to write, I remind myself I am representing the officers with whom I work. They tend to be an opinionated bunch, and don't hesitate to tell me what they think. They keep me on my toes, much like my readers do.

It's funny. Sometimes I'll write something and think, "Whoh, this one is terrible!" But, almost every time, someone will say, "Hey, I read your article. That was really good." Other times I'll send in a column and think, "This is a good one." Inevitably, someone will say, "I read your article. I don't get it!" It keeps me humble.

I try to show conservation officers are human beings. We try our best to do a job made difficult by the wide range of responsibilities we have and the vast territory we have to cover. Just like everyone else, though, sometimes we succeed and sometimes we fail.

Often I have let you see my human side, something law enforcement officers aren't known for. I've shared some of the ups and downs of both my professional and private life. After all, you might not be a game warden, but we all share something in common. Whatever we do, we are all just trying to get through life and meet its challenges, the best way we know how.

To do that, I have written from my heart. I think the best writing comes from there anyway. Some of what you read may make you laugh, some may make you sad. If I do that, then I've helped you share the game warden experience.

From time to time I have received letters from readers telling me how a story has affected them. I remember an especially poignant letter from a man responding to a column about being diagnosed with cancer. He explained he had the same type of cancer, and offered encouragement by saying he was leaving shortly for a hiking trip in the western Rockies. One reader wrote to tell me she felt like she was in the outdoors with me.

Another reader wrote to chastise me for my disdain of technology. He let me know he had a cell phone and a Global Positioning System (GPS), and he used them regularly. Well, sir, if you're reading this, you will be pleased to know I now have a GPS in my car, only I'll have to go back to grad school to learn how to use it. Right now, it serves as a great hat rack.

I will continue to do my best, as long as I am given the opportunity, to take you along on our adventures. But keep Wendell Simonson's definition of an adventure in mind. "An adventure is something that while you were having it, you didn't realize you were having it, and while you were having it you wished you were someplace else." In police work that can be very true.

I want to thank the officers I work with who, from time to time, will call and say, "Hum, guess what happened, you might want to use this in the magazine." I want to thank my editors who have given me advice and freedom to experiment, improve and stretch a little as a writer. Most importantly, thank you, the readers, who are really the reason for Warden's Diary.

Parting Shot

When they called "allemande left," Rudy didn't quite know what to do.

Roger A. Hill